Subject Index to Volume 83

A

Abdomen
blood and fluid from, and central blood volume expansion in water immersion in humans, 695
expansion, during tidal breathing, 1531
Accelerometer
triaxial, for energy expenditure estimation, 2112
Acetate
oxidation, in skeletal muscle, 32
Acetylcholine
and coronary endothelium-mediated vascular reactivity, in exercise-trained rat, 434
and vasorelaxation in guinea pig lung explants, 1476
Acetyl-CoA carboxylase
skeletal muscle, activity, exercise intensity and, 1104
Acetylene rebreathing experiments
in microgravity, 810
Acid-base balance
see also **Acidosis; Alkalosis**
exercise and, 631
strong ion model for, 297, 644
Acid-base status
regulation, after maximal exercise testing in late pregnancy, 644
Acidosis
focal, in retrotrapezoid nucleus, and central chemoreceptor sensitivity, 420
strong ion model for, 297
Acinar flow
in aerosol deposition in lung, 800
Activity level, *see* **Bed rest; Exercise; Exercise training**
Actomyosin
ATPase activity, nitric oxide donor and, 1326
cross bridges, 40
cycling kinetics, in lung, 1418, 1420
cycling kinetics, in rat diaphragm, 1062
cycling kinetics, nitric oxide donor and, 1326
in eccentric moment generation, 40
Acute respiratory distress syndrome
pathophysiology, 550, 559
Adenosine
femoral arterial injection, and muscle sympathetic nerve activity, 1043, 1045
and muscle sympathetic nerve activity, 1043, 1045
Adenosine 3′,5′-cyclic monophosphate
dibutyryl, in preservation solution, for lung protection in ischemia-reperfusion, 583
Adenosine triphosphate
turnover, in muscle, during contraction, 867
Adipose tissue
brown, in cold stress, 1116
metabolism, splanchnic, in canine diabetes model, 1339
Adolescents
body composition validation in, 927
exercise performance in, at high altitudes, 661
Adrenalectomy
and cardiovascular response to hemorrhage, in rat, 1648
Adrenal medulla
in blood pressure regulation, 95
α-Adrenergic receptors
α_1-, agonists, inhibition of dry air-induced bronchoconstriction, 1884
β-Adrenergic receptors
antagonism
changes in stroke volume with, in men and women, 1660
and natural killer cell recruitment, 1492
function, in grafted skeletal muscle, and contractile properties, in rat, 67
in skeletal muscle, and force, with chronic β-blockade, 459
Adrenocorticotropic hormone (corticotropin)
plasma levels, in women, in response to exercise, 1822
Adult respiratory distress syndrome, *see* **Acute respiratory distress syndrome**
Aerobic capacity
age-related decline, in women, 160, 1947
maximal, age-related decline in women, 1947
Aerobic fitness
and excess postexercise oxygen consumption, 153
Aerosols
bolus inhalations, 966
deposition in lung
effect of convective stretching and folding on, 800
gravity and, 2029
servo-controlled respiration system for studies of, 1768
dispersion in lung
bolus tests, numerical simulations and experimental data, 966
servo-controlled respiration system for studies of, 1768
transport simulations, 966
Aging
see also **Elderly**
and aerobic capacity, in women, 160, 1947
and arterial carbon dioxide in rest and exercise, estimation and measurement, differences between, 312
and maximal aerobic capacity, in women, 1947
and myogenic regulatory factors in skeletal muscle regeneration, 1270
and nerve-repair muscle grafting, in rat, 1623
of neuromuscular junction, endurance exercise and, 59
and muscle strength, in humans, 1581
and skeletal muscle mass, 229
skeletal muscle motor unit recruitment and microvascular perfusion in, 1223
Airflow limitation
determination, in normal and asthmatic subjects, 1721
and exercise capacity, 503, 936
in obstructive sleep apnea, 851
Airway
clearance, in ferret, 761
collateral, 1595
constriction
see also **Bronchoconstriction**
inhomogeneities, 1192
edema
and airway responsiveness, 366
effects on reactivity, 784
hyperreactivity, 366
hyperresponsiveness, 140, 366
to cigarette smoke, in guinea pigs, 958
in humans, 1276
inflammation, airway hypercontractility in, 1216
mechanics, 140
normal and asthmatic, 1814
mucus, in ferret, 761
myogenicity, induction of, in humans, 1276
narrowing
and airway responsiveness in mechanically ventilated rabbit, 1202
during histamine provocation, 1907
patency, during respiration, in cat, 1588
permeability, in ferret, 761
pharyngeal, lateral pharyngeal fat pad pressure, in pigs, 688
reactivity
effects of wall thickening on, 784
to oscillatory conditions, 731, 739
in ragweed-sensitized dog, 912
receptors, and helium-oxygen breathing during exercise, 82
resistance, 1192, 1595
in hypoxia, 451
lung parenchymal shear modulus and, 140
in mice, 46
in primate model of asthma, 1690
during sleep, gender differences in, 1986
responses, in P-selectin-deficient mice, 679, 681
responsiveness
in cynomolgus monkeys, 1690
to histamine, neuronal nitric oxide and, 1432
small, morphometry, 784
smooth muscle, *see* **Muscle, smooth**
surface liquid, in ferret, 761
upper
distortion, superior laryngeal nerve section and, 768
lateral pharyngeal fat pad pressure, in pigs, 688
muscles, in dogs, 768
negative pressure, and control of breathing, 768
patency, laryngeal afferents and hypoglossal motoneurons in, 1890
sensory inputs from, effects on firing of respiratory-associated midbrain neurons, 196

Airway (*continued*)
wall structure, normal and asthmatic, 1814
Airway thermal volume
in humans, body size and, 331, 668
Albumin
transcapillary escape rate, after exercise, 407
Alcohol
effects on postexercise rehydration, 1152
Aldosterone
plasma levels, with exercise-associated hyponatremia, in dog, 824
Alkalosis
strong ion model for, 297
Allometry
in exercise sciences, 2158
Almitrine
effects, on diaphragm fatigue, 52
Altitude
high
acclimatization to, combined with low-altitude training, effects on performance, 102
developmental adaptation to, 661
and exercise performance of Tibetan and Han adolescents, 661
genetic adaptation to, 661
and ventilation, in Han-Tibetans, 661, 2098
and ventilatory responsiveness, in Han-Tibetans, 2098
Alveoli
pulmonary
blood flow and pressure gradients in, 1711
in emphysema, 179
Anaphylaxis
in isolated canine lung, 1508
Anemia
carbon dioxide transport in, 240
Angiotensin-converting enzyme
attenuation of smokeless tobacco-induced macromolecular efflux from oral mucosa, 74
Angiotensin-converting enzyme (ACE) inhibition/inhibitor
cardiovascular and renal responses to, in lambs, 414
Anion channels
in pulmonary endothelial permeability, 615
Antigen
airway responsiveness to, in cynomolgus monkeys, 1690
Antioxidants
effects, on resting and exercise-induced oxidative stress, 189
and exercise performance, 746
for hyperoxic lung injury, 550, 559
induction, via melatonin receptors, 354
Aorta
pressure, in mitral stenosis, 1083
Apnea
see also **Obstructive sleep apnea; Sleep apnea**
hemodynamic effects, 485
pressor response to, neural mechanism of, 2048
in response to laryngeal exposure to wood smoke, in rat, 723
suppression, during sleep, in hydralazine-treated rat, 1954
Apolipoproteins
postexercise levels, in hypercholesterolemic men, 2019
Aquaporin
aquaporin-1, distribution in pulmonary air spaces, and water transport, 1002
ARDS, *see* **Acute respiratory distress syndrome**
Arginine vasopressin, *see* **Vasopressin**
Arrhythmias
cardiac, in deep breath-hold dives, 1282
Arteries
compliance, in mitral stenosis, 1083
load, in mitral stenosis, 1083
pulmonary, *see* **Pulmonary artery pressure**
wave reflections, in mitral stenosis, 1083
Asphyxia
positional, in sleeping infants, 219
Asthma
see also **Bronchoconstriction**
airway hypercontractility in, 1216
airway hyperresponsiveness in, 1276
canine model, 912
exercise-induced, α_1-adrenergic agonists and, in dog, 1884
mucosal folding in airways in, mechanism of, 1814
nonhuman primate model, 1690
P selectin and, 679, 681
Atenolol
and stroke volume changes with exercise training, in men and women, 1660
Athletes, *see* **Exercise; Exercise training**
Atrial natriuretic peptide
and blood volume regulation after exercise, 11
response to exercise after coca-induced body fluid shifts, 376
Atrioventricular interaction
pericardial constraint and, 1797, 1799
Atropine
effects, on hypoxemic response, in dog, 451
Autocorrelation function
nonlinear variants, 975
Autonomic nervous system
in blood flow regulation, during dynamic exercise, 1575
and skeletal muscle blood flow during exercise, 2037
Autoregulation
cerebral, after adaptation to simulated microgravity, 2139
Aviation medicine
natural killer cell recruitment in, 1492

B

Baboons
mucociliary transport system, ion transporters and, 1348
Baroreflexes
and cardiopulmonary interaction, in rat, 1602
cardiovascular response to, ACE inhibition and, 414
modulation of thermoregulatory vasodilation, in rabbit, 2091
Bed rest
effects on bioassayable growth hormone release, 2086
head-down-tilt, effects on cerebral hemodynamics during orthostatic stress, 2139
Blood flow
see also **Hemodynamics**
cerebral, *see* **Cerebral blood flow**
femoral artery, Doppler ultrasound estimates of, 1383
liver, in endotoxic shock, 1566
myocardial
fractal analysis, in shock, 1832
spatial heterogeneity, in shock, 1832
posthemorrhagic, in adrenalectomized rat, 1648
pulmonary
modeling, 1370
respiration and, 2123
pulmonary capillary, factors affecting, 1711
regional, in exercise, in heart failure, 1933
renal, and splanchnic ischemia-reperfusion injury, in rat, 530
skeletal muscle
in canine gastrocnemius muscle, 1867
during dynamic exercise, 1575
during exercise, 1223, 2037
nitric oxide and, in human limbs, 1785
skin
arterial baroreflex modulation of, in rabbit, 2091
nitric oxide and, in human limbs, 1785
oral contraceptive hormones and, 2012
in postmenopausal women, hormone replacement therapy and, 477
Blood gases
measurement, in older subjects, 312
Blood pressure
see also **Hypertension; Hypotension**
arterial
apnea and, 2048
changes, in deep breath-hold dives, 1282
during overground locomotion, in cat, 1454
syncope and, 383
transient intrathoracic pressure changes and, 371
during exercise, in children and adults, 948
exercise training and, in men and women, 1660
pulmonary, respiration and, 2123
regulation, in rabbit, 2091
response to chronic episodic hypoxia, 95
Blood velocity
Doppler ultrasound estimates of, 1383
Blood volume
after exercise, 11
expansion, during immersion, in humans, 695
posthemorrhagic, in adrenalectomized rat, 1648
pulmonary, after exercise, 11
Body composition
age-related changes in, in women, 1947
aging and, 229
estimates
accuracy, 623

from dual-energy X-ray absorptiometry, in vivo validation of, 623
multicompartment models, in children, 927
and physiological adaptation to caloric restriction and exercise, in women, 270
Body fat
estimation, in prepubertal and pubertal children, 927
exercise and, in humans, 5, 7
Body fluids
compartments, in endurance-trained elderly subjects, 1300
Body size
and airway thermal volume in humans, 331, 668
and normalized metabolic stress for dynamic exercise studies, 875
Body weight
loss, and physiological adaptation to caloric restriction and exercise, in women, 270
Bone
histomorphometry, in response to unloading, in exercise-trained rat, 172
metabolism, in orchidectomized rat, 129
mineral content, validation, 623
resorption, resistance exercise and, 1159
response to unloading, in exercise-trained rat, 172
Bosentan
effects on monocrotaline-induced pulmonary hypertension in rat, 1209
BQ-123
and airway resistance, in mice, 46
and flow-induced responses in isolated pulmonary arteries from cat, 1617
BQ-788
and airway resistance, in mice, 46
Bradycardia
in deep breath-hold dives, 1282
Bradykinin
airway edema caused by, and airway reactivity, 784
and airway responsiveness, 366
and smokeless tobacco-induced macromolecular efflux from oral mucosa, 74
Brain
oxidative damage induced by hyperbaric oxygen, melatonin and, 354
redox behavior of cytochrome oxidase in, in rat, 1842
Breathing
see also **Liquid ventilation; Ventilation**
control of
central chemoreceptors in, 420
in dogs, 768
at high altitude, 2098
during hypoxia or hypercapnia, in rat exposed to CO hypoxia, 253
laryngeal afferents and hypoglossal motoneurons in, 1890
in men and women, 599
in rat, 1174
and retrotrapezoid nucleus TRH, in rat, 792
and speech, 1438
neural-mechanical coupling of, in REM sleep, 1923
periodic, *see* **Periodic breathing**
sleep-disordered, 1923
susceptibility to, gender differences in, 1986
tidal
see also **Tidal volume**
airway reactivity in, 731, 739
chest wall motion during, 1531
rate, and airway responsiveness, in mechanically ventilated rabbit, 1202
Bronchi
hyperresponsiveness, 140
smooth muscle, myogenic contractile responses, in humans, 1276
Bronchoconstriction
see also **Asthma**
cigarette smoke-induced, ozone and, in guinea pigs, 958
dry air-induced, α_1-adrenergic agonists and, 1884
ET_B receptor in, in mice, 46
hyperventilation-induced, α_1-adrenergic agonists and, 1884
lysophosphatidic acid and, 1216
P selectin and, 679, 681
Bronchoprovocation
pulmonary vascular responses to, with ragweed sensitization, 912
ventilation distribution after, 1907

C

Calcium ATPase
activity, and skeletal muscle fatigue, 511
Calcium ions
homeostasis, myocardial, inotropic intervention and, 652
renal tubular reabsorption, resistance exercise and, 1159
in skeletal muscle fatigue and recovery, 444
urinary excretion, resistance exercise and, 1159
Calorimetry
indirect, in humans, 2064
synchronous direct gradient layer and indirect room, 1775
Capillary filtration coefficient
after exercise, 407
pulmonary
in anaphylaxis, 1508
in circulation-arrested donor, 247
isoproterenol and, in rat, 1962
optical measurement of, 1976
Capsaicin
and hypoxia-induced ventilatory changes, 700
Captopril
cardiovascular and renal responses to, in lambs, 414
Carbohydrate
supplements, and muscle glycogen repletion after exercise, in men and women, 1877
Carbon dioxide
arterial, in older subjects during rest and exercise, estimation and measurement, differences between, 312
arterial partial pressure, and ventilation in preterm newborn, 1054
end-tidal, in older subjects, measurement, 312
inhaled, and respiratory drive, 1654
production, determination, in humans, 2064
transport, in normovolemic anemia, 240
ventilatory response to, classic conditioning of, in rat, 1174
Carbon monoxide
hypoxia, and ventilatory responses to hypoxia or hypercapnia, in rat, 253
pulmonary diffusion capacity for, after exercise, 11
Cardiac output
in deep breath-hold dives, 1282
in endotoxic shock, nitric oxide and, 1164
during exercise, 1900
in children and adults, 948
in humans, 712
exercise training and, in men and women, 1660
at high altitude, 661
measurement, tracer bolus method, 884
in microgravity, 810
with obstructed breathing during sleep, 1671
and pulmonary heat exchange, 668
Cardiac tamponade
hemodynamics in, 1797, 1799
Cardiomyoplasty
dynamic, 398, 994
Cardiopulmonary interaction
baroreflexes and, in rat, 1602
hiccups and, 371
in sleeping rat, protoveratrines A and B and, 1602
Cardiovascular system
in endurance-trained elderly subjects, 1300
Carnitine palmitoyltransferase
malonyl-CoA and, in skeletal muscle, 1917
Carotid body
function, female hormones and, 1706
Catecholamines
and glucagon response during exercise, in rat, 148
response to exercise after coca-induced body fluid shifts, 376
response to training in women, 1551
and stress-induced lymphocyte recruitment, 1492
Catecholestrogens
response to training in women, 1551
Catechol-*O*-methyltransferase
activity, in response to training in women, 1551
Cats
cough motor pattern in, cerebellar modulation of, 391
decerebrate, locomotion, chemical stimulation of cardiac receptors and, 113
laryngeal afferents and respiratory hypoglossal motoneurons in, 1890
newborn, respiration, 1890
overground locomotion, cardiovascular responses to, 1454
pharyngeal constrictor activity in, 1588
pulmonary arteries, flow-induced responses in, 1617
Central command
during overground locomotion, in cat, 1454
Central nervous system
in exercise, 1448, 1454
Central venous pressure
during microgravity, in humans, 1862

Cerebellum
and cough motor pattern, in cats, 391
Cerebral blood flow
in Cheyne-Stokes respiration, 1184
in orthostatic stress, after adaptation to simulated microgravity, 2139
Chaos
in aerosol deposition in lung, 800
Chemoreceptors
carotid body, and ventilatory responses to hypoxia or hypercapnia, in rat, 253
in retrotrapezoid nucleus, acidosis and, 420
Chemoreflexes
central, in awake humans, 466
coronary, and locomotion in decerebrate cats, 113
peripheral, in awake humans, 466
Chemosensitivity
hypoxic, female hormones and, 1706
Chest wall
mechanics, in dog, 1068
motion
analysis, 1531
during tidal breathing, 1531
Cheyne-Stokes respiration
hemodynamics in, 1184
Children
body composition validation in, 927
cardiovascular response to exercise, 948
Chloride ions
in mucociliary transport system regulation, 1360
Chronic obstructive pulmonary disease
respiratory effort sensation in, 936
Ciliary beat
ion transporters and, 1348
Circadian rhythms
in hormonal and metabolic responses to exercise, in women, 1822
Circulation
see also **Blood flow**
cerebral, in Cheyne-Stokes respiration, 1184
pulmonary
factors affecting, 1711
respiration and, 2123
Citrate synthase
activity
in grafted skeletal muscle, and contractile properties, in rat, 67
in skeletal muscle, in heart failure, 1291
in skeletal muscle, in non-insulin-dependent diabetes (NIDDM), 166
Citric acid cycle
carbon-13 isotopomer analysis of, in rat skeletal muscle, 32
Coca chewing
and body fluid homeostasis during exercise, 376
Cold acclimation
suppressor macrophages and, 1116
Cold stress
suppressor macrophages in, 1116
treatment, 1630, 1635
Collagen
gene expression, mechanical stress-induced, in rat lung, 1697
Colostrum
bovine, supplement, and serum IGF-I levels during training, 1144
Complement
activation, alternative pathway, in acid aspiration, 1090
Compliance
arterial, in mitral stenosis, 1083
pulmonary vascular, in hypoxia, serotonin and, 569
respiratory, in hypoxia, 451
Conditioning
classic, of ventilatory responses in rat, 1174
operant, and central command in exercise, 1448
Congenital diaphragmatic hernia
pathogenesis, 338
Connective tissue
and mechanical status of lung parenchyma, 1418, 1420
Continuous positive airway pressure
lung mechanics during, 591
Convective mixing
in aerosol deposition in lung, 800, 966
COPD, *see* **Chronic obstructive pulmonary disease**
Copper-zinc superoxide dismutase
inhibition of surfactant function, 1545
Coronary arteries
contractile responsiveness, in exercise-trained rat, 434
Corticosteroids
and diaphragm muscle, 1062
prenatal therapy, and postnatal lung function and protein permeability, 213
Cortisol
levels, in women, in response to exercise, 1822
Coughing reflex
cerebellum and, 391
Creatine
intake, and muscle strength, 2055
Creatine kinase
activity, after muscle damage, vitamin E and, 817
in exercise-induced muscle damage, 1076
Cricopharyngeus muscle
motor innervation, by recurrent laryngeal nerve, 89
Cyclooxygenase
and thromboxane-related vasoconstrictor responses in lung, 18
Cystic fibrosis
exercise performance and recovery in, supplemental oxygen and, 1641
Cytochrome oxidase
measurement, by near-infrared spectroscopy, 1842
redox behavior in rat brain, 1842

D

Dehydration
exercise-induced, fluid balance after, effects of alcohol on, 1152
Densitometry
accuracy, 623
Deoxypyridinoline
urinary excretion, in castrated exercised rat, 129
DEXA, *see* **Dual-energy X-ray absorptiometry**
Diabetes mellitus
canine model, splanchnic fat metabolism in, 1339
insulin-dependent (type I), preexercise glucose ingestion in, 608
non-insulin-dependent diabetes (NIDDM)
skeletal muscle glycolytic capacity in, 166
skeletal muscle oxidative capacity in, 166
Diaphragm
see also **Congenital diaphragmatic hernia**
activity
during continuous positive airway pressure, 591
hypoxia-induced increases, vagal fibers in, 700
contractile properties, in rat, 1062
dimensions, during breathing, 291
endurance, 1062
fatigue, 1062
almitrine and, 52
doxapram and, 52
recovery from, 52
ultrasound evaluation in, 1654
function
in humans, 1242, 1256
recovery after thoracic surgery, 1733
geometry
in humans, 1123
mathematical model of, 1486
hemiparalysis, and exercise, 1405
kinematics and mechanics, in dog, 1068
length, during breathing, 291
mechanics, 1486
during breathing, 291
motor control, 776
shortening and thickening, patterns, in humans, 1123
structure and shape, theory of, 1486
thickening during inspiration, 291
thickening ratio, in humans, 1123
transdiaphragmatic pressure
in dog, 1068
during respiration, in humans, 1242, 1256
ultrasound evaluation of, in piglet, 1654
wall stress in, during inspiration, 1123
Diaphragmatic electromyogram
in hypoxia, in piglets, 522
Diet
and exercise performance, 746
and muscle performance during resistance training, 2055
Diffusing capacity
in microgravity, 810
Diffusion
in aerosol deposition in lung, 800
Digital image analysis
in rat lung, 543
Dives
deep breath-hold, cardiovascular changes during, 1282
helium-nitrogen-oxygen breathing during, and sleep disturbances, 575
Diving response
mammalian, 1282
Dobutamine
effects, on bone response to unloading, in exercise-trained rat, 172
Dogs
diabetes model, splanchnic fat metabolism in, 1339
diaphragm, kinematics and mechanics, 1068

E. coli pneumonia, recombinant granulocyte colony-stimulating factor and, 1467
emphysema model, respiratory mechanics in, 179
exercise-associated hyponatremia in, 824
gastrocnemius muscle, regional mechanics, in perfused preparation, 1867
hyperventilation-induced airway injury and vascular leakage in, α_1-adrenergic agonists and, 1884
inhalation studies in, servo-controlled respiration system for, 1768
latissimus dorsi muscle, variable-frequency train stimulation of, 994
lung
anaphylactic vasoconstriction in, 1508
capillary filtration coefficient, in anaphylaxis, 1508
capillary filtration coefficient, optical measurement of, 1976
mechanics, in hypoxia, 451
mucociliary transport system
ion transporters and, 1348, 1360
regulation, 1360
muscle nitric oxide synthases in, 348
neural-mechanical coupling of breathing in REM sleep, 1923
pulmonary vascular responses to bronchoprovocation, with ragweed sensitization, 912
skeletal muscle
oxygen extraction ratio, 1681
sympathetic vasoconstriction in, during dynamic exercise, 1575
skeletal muscle blood flow, during exercise, 2037
sleeping, upper airway distortion in, superior laryngeal nerve section and, 768
Doxapram
effects, on diaphragm fatigue, 52
Dual-energy X-ray absorptiometry
whole body composition estimates from, in vivo validation of, 623
Dual-respiration chamber system
with automated calibration, 2064
Duodenum
absorption from, during exercise, 204
Dyspnea
neuronal inputs in sensation of, 196

E

Effective arterial elastance
hemodynamic correlates of, in mitral stenosis, 1083
Eicosanoid
release, splanchnic ischemia-reperfusion injury and, 530
Elastance
pulmonary, *see* **Lung, elastance**
Elderly
see also **Aging**
endurance training in, effects on cardiovascular system and water compartments, 1300
Electrical impedance tomography
and lung function, 1762
Electroencephalography
effects of helium-nitrogen-oxygen breathing during dives, 575
in sleep, 1986, 2006
Electromyography/electromyogram
see also **Diaphragmatic electromyogram**
of upper airway muscles, in dogs, 768
Electrophysiology
of skeletal muscle, trauma-induced changes, 1096
EMD-57033
and myocardial calcium homeostasis, 652
Emphysema
canine model, respiratory mechanics in, 179
Endothelin
ET-1
and airway resistance, in mice, 46
and flow-induced responses in isolated pulmonary arteries from cat, 1617
Endothelin receptors
antagonist, effects on monocrotaline-induced pulmonary hypertension in rat, 1209
ET_A, and airway resistance, in mice, 46
Endothelium
permeability, in sepsis, nitric oxide and, 1941
pulmonary, permeability, anions in, 615
and vasorelaxation in guinea pig lung explants, 1476
Endothelium-derived relaxing factor
see also **Nitric oxide**
in endotoxic shock, 1164
Endotoxin
and fever genesis, 359
host defense against, recombinant granulocyte colony-stimulating factor and, 1467
priming, in perfused rabbit lung, 18
responses to, glucose modulation of, 1566
Energy expenditure
determination, in humans, 2064
estimation
by body acceleration, 2112
triaxial accelerometer for, 2112
measurement, synchronous direct gradient layer and indirect room calorimetry for, 1775
postexercise, regulation, in trained and untrained subjects, 153
Epicardium
receptors, stimulation, and locomotion in decerebrate cats, 113
Epithelium
airway, in asthma, 1814
Erythrocytes
deformability, and exercise performance, 746
distortion, and diffusing capacity estimates, 1397
technetium-99m-labeled, blood volume measurement using, 11
Esophageal reflux
recurrent laryngeal nerve paresis and, 89
Estrogen
and cutaneous vasodilation, 2012
effects on thermoregulatory and vasomotor function, in postmenopausal women, 477
and hypoxic chemosensitivity, 1706
levels, in women, in response to exercise, 1822
Estrogens
metabolism, in response to training, in women, 1551
Ethnicity
and skeletal muscle mass, 229
whole body composition estimates and, 623
Evoked potentials
respiratory-related, resistive loads and, 918
Exercise
see also **Exercise training**
absorption from different intestinal segments during, 204
blood volume after, 11
body fluid homeostasis during, coca chewing and, 376
capacity
age-related decline, in women, 160
glucose ingestion and, in normal and diabetic (type I) humans, 608
cardiovascular adaptations to, 1900
cardiovascular response to, in children and adults, 948
central command in, 1448, 1454
and coronary endothelium-mediated vascular reactivity, 434
dynamic, sympathetic vasoconstriction in skeletal muscle during, 1575
effects
on bone metabolism, in orchidectomized rat, 129
on non-weight-bearing muscles, in rat, 1522
on oxygen uptake kinetics in subsequent exercise, 1318
on splanchnic fat metabolism, in canine diabetes model, 1339
endurance
see also **Running**
and aging of neuromuscular junctions, 59
glucagon response during, in rat, 148
growth hormone release in response to, bed rest effects on, 2086
growth hormone response to, in humans, 1756
hormonal and metabolic responses of women to, across time of day and menstrual cycle phase, 1822
and host defense, 1461
hyperkalemia related to, 631
hyponatremia due to, in Alaskan sled dogs, 824
intensity, and skeletal muscle acetyl-CoA carboxylase activity, 1104
lactate threshold, 1235
multijoint, mechanical power output in, in humans, 1749
muscle damage induced by
and GLUT-4, 1482
troponin I after, 1076
muscle glycogen accumulation after, 897
muscle glycogen repletion after
and endurance running, 1482
in men and women, 1877
oxidative stress induced by, effects of fish oil and vitamin E supplementation on, 189
oxygen uptake during
kinetics, 1235, 1318
slow component of, 1235, 1333

Exercise (*continued*)
performance
in cystic fibrosis, supplemental oxygen and, 1641
oxidative stress and, 746
with slight expiratory resistance, 503
of Tibetan and Han adolescents at high altitude, 661
prolonged, skeletal muscle relaxation after, 511
pulmonary diffusion capacity for carbon monoxide after, 11
recovery from, in cystic fibrosis, supplemental oxygen and, 1641
recovery rate after, and excess postexercise oxygen consumption in trained and untrained subjects, 153
resistance, and hypercalciuria, 1159
resistive, effects on myonuclear number in chronically unloaded skeletal muscle, 1857
respiratory effort sensation during, and respiratory muscle recruitment, 936
respiratory muscle actions and control during, in humans, 1242, 1256
respiratory muscle reserve during, 1405
rib cage mechanics in, in humans, 1242, 1256
skeletal muscle blood flow during, 2037
skeletal muscle perfusion during, 1223
stroke volume increase during, with fixed heart rate, in humans, 712
sweat fluid and ion losses in, in horses, 1133
tachycardia of, central command and, 1448
vasodilation in, nitric oxide and, in humans, 1785
vasodilatory prostaglandin production in, in heart failure, 1933
ventilatory response to helium-oxygen breathing during, airway receptors and, 82
ventilatory threshold in, 1235, 1318
Exercise training
see also **Exercise**
and bone loss during unloading, 172
bovine colostrum supplementation in, and serum IGF-I levels, 1144
catecholestrogen response to, in women, 1551
and contraction-stimulated glucose transport in muscle, 429
effects, changes in stroke volume with β-blockade, in men and women, 1660
endurance
see also **Running**
and age-related decline in maximal aerobic capacity, in women, 1947
and body fluids, in elderly, 1300
and cardiovascular system, in elderly, 1300
host defense in, 845
and malonyl-CoA in muscle, 1917
and physiological adaptation to caloric restriction, in women, 270
and insulin responsiveness of skeletal muscle, 2043
and leptin levels, in humans, 5, 7
and lipid levels, in hypercholesterolemic men, 2019
resistance
and human cervical neuromuscular adaptations, 2105
muscle performance during, creatine intake and, 2055
serum IGF-I levels in, bovine colostrum supplementation and, 1144
short-term, cardiovascular adaptations to, 1900
strength, and physiological adaptation to caloric restriction, in women, 270
Exosurf
surfactant replacement therapy with, 1545
Extensor digitorum longus muscle
contractile efficiency, in humans, in vivo, 867
contraction-induced injury, in rat, 817
Extracellular matrix
components, in lung, with lung inflation, 120

F

Fastigial nucleus
and cough motor pattern, in cats, 391
Fatigue, muscle
calcium and, 444
calcium uptake and contraction in, 511
in diaphragm, 1062
almitrine and, 52
doxapram and, 52
recovery from, 52
ultrasound evaluation in, 1654
local effects in, in canine gastrocnemius muscle, 1867
mechanical behavior and, in humans, 1557
in multiple sclerosis, 1998
during prolonged inspiratory resistive loading, 776
and respiratory infection, 1461
sodium bicarbonate and, 333
Fatty acids
metabolism, in skeletal muscle, 1917
oxidation, exercise intensity and, 1104
polyunsaturated, effects on resting and exercise-induced oxidative stress, 189
unsaturated, and exercise performance, 746
Febrile response
after hemorrhage, 359
Females, *see* **Gender differences**
Ferrets
lung, flow-induced vasodilation in, 495
trachea, airway surface liquid, 761
Fetus
lung, liquid production, nitric oxide effects on, 1538
mammalian, prenatal corticosteroid therapy, and postnatal lung function and protein permeability, 213
Fibronectin
gene expression, mechanical stress-induced, in rat lung, 1697
Finite element analysis
of red cell distortion and diffusing capacity estimates, 1397
Fish oil
and exercise performance, 746
supplementation, effects on resting and exercise-induced oxidative stress, 189
Fluid
absorption, from different intestinal segments, during exercise, 204
Fluid balance
during exercise, 204
Fluid volume
intra- and extracellular, in endurance-trained elderly subjects, 1300
Frogs
skeletal muscle, mechanical properties after stretch, 1741
Fura 2
intracellular calcium measurements using, 652

G

Gas exchange
pulmonary
in anemia, 240
and exercise performance in cystic fibrosis, 1641
Gas transport
pulmonary
in emphysema, 179
Gastrocnemius muscle
grafting, and contractile properties, in rat, 67
medial, non-weight-bearing, growth factor and exercise effects on, in rat, 1522
nerve-repair grafting, in aging rat, 1623
regional mechanics, in perfused canine preparation, 1867
Gender differences
and age-related decline in aerobic capacity, 160, 1947
in airway resistance during sleep, 1986
in control of breathing, 599
in hormonal and metabolic response to exercise, 1822
in muscle strength, in humans, 1581
in physiological adaptation to weight-loss diet and exercise, 270
in postexercise glycogen repletion, 1877
in skeletal muscle mass, 229
in stroke volume, with β-blockade, 1660
whole body composition estimates and, 623
Gene expression
mechanical stress-induced, in rat lung, 1697
Gestation, *see* **Pregnancy**
Glucocorticoids
in cold stress, 1116
Glucose
blood levels, in women, in response to exercise, menstrual cycle phase and, 1822
ingestion, effects on exercise capacity, in normal and diabetic (type I) humans, 608
metabolism, and endotoxic shock profile, 1566
plasma, during exercise, in rat, 148
transport
insulin-stimulated, in skeletal muscle of exercise-trained rat, 2043
in muscle, glycogen level and, 429
Glucose transporter
in nerve-repair grafted muscle, 1623
Glucose transporters
GLUT-4
in grafted skeletal muscle, and contractile properties, in rat, 67
in skeletal muscle, 429, 897, 1482, 2043

Gluteus maximus muscle
neuromuscular junctions, endurance exercise and, in mice, 59
Glycogen
hepatic, during exercise, in rat, 148
muscle
accumulation after exercise, 897
and contraction-stimulated glucose transport, 429
endurance running and, 1482
in men and women, 1877
repletion, postexercise
endurance running and, 1482
in men and women, 1877
stores, in grafted skeletal muscle, and contractile properties, in rat, 67
supercompensation, after exercise, 897
Glycogen synthase
activity, after exercise, 897
Glycolysis
in grafted skeletal muscle, and contractile properties, in rat, 67
Goblet cells
in exercise-induced asthma, 1884
Granulocyte colony-stimulating factor
recombinant, effects in canine *E. coli* pneumonia, 1467
Gravity
see also **Hypergravity; Microgravity**
and aerosol deposition in lung, 2029
and lymphocyte recruitment, 1492
Growth factors
effects, on non-weight-bearing muscles, in rat, 1522
in lung parenchyma, with lung inflation, 120
Growth hormone
effects, on non-weight-bearing muscles, in rat, 1522
release, bed rest and, 2086
response to exercise, in humans, 1756
Guinea pigs
airway, responsiveness to histamine, neuronal nitric oxide and, 1432
airway hyperresponsiveness to cigarette smoke in, ozone and, 958
HSP 72 induction by ozone in vivo, 707
lung explants, vasorelaxation in, 1476
thermoregulation in, during maturation, 830

H

Haloperidol
hypoxic sensitivity after, in humans, 1110
Hamsters
oral mucosa, smokeless tobacco-induced macromolecular efflux from, attenuation by ACE, 74
Heart
atrial distension during microgravity, 1862
baroreflex control of, ACE inhibition and, 414
neural pathways, in somatomotor inhibition, in decerebrate cats, 113
volume, during microgravity, in humans, 1862
Heart failure
exercise-induced vasodilation in, prostaglandin production in, 1933
inotropic intervention in, and myocardial calcium homeostasis, 652
rat model, skeletal muscle biochemistry and histology in, 1291
and sodium-potassium-ATPase in skeletal muscle, 323
Heart rate
coca chewing and, 376
in deep breath-hold dives, 1282
in exercise, central command and, 1448, 1454
maximal, age-related changes in, in women, 1947
during overground locomotion, in cat, 1454
syncope and, 383
Heart ventricles
interdependence, 1797, 1799
left
function, in apnea, 485
function during exercise, 1900
mass, and cardiovascular response to exercise in children and adults, 948
Heat
acclimation, 1017
heat shock proteins and, 1413
emission, synchronous direct gradient layer and indirect room calorimetry of, 1775
production, synchronous direct gradient layer and indirect room calorimetry of, 1775
Heat exchange
clothing, in heat-strain models, 1017
pulmonary, 668
Heat loss
evaporative, in prolonged exercise, in horses, 1133
and sleepiness, 134
Heat shock proteins
and heat adaptation of whole organism, 1413
HSP 72, induction by ozone in vivo, 707
Heat strain
physiological, predictive models, 1017
Heat stress
cutaneous vascular response to, oral contraceptive hormones and, 2012
thermoregulation during, hydration and, 860
Helium-nitrogen-oxygen breathing
during dives, and sleep disturbances, 575
Helium-oxygen breathing
during exercise, airway receptors and, 82
Hemodilution
isovolemic, carbon dioxide transport in, 240
Hemodynamics
in Cheyne-Stokes respiration, 1184
in endotoxic shock, glucose modulation of, 1566
in pericardial disease, 1797, 1799
pulmonary, with obstructed breathing during sleep, 1671
renal, ACE inhibition and, 414
systemic, with obstructed breathing during sleep, 1671
Hemoglobin
allosteric modifier, and oxygen extraction ratio in canine skeletal muscle, 1681
oxygenation, near-infrared spectroscopy of, 1842
Hemorrhage
antipyresis after, 359
cardiovascular effects, in adrenalectomized rat, 1648
Henderson-Hasselbalch equation
for mammalian acid-base equilibria, 297
Hering-Breuer reflex
and hypoxia-induced ventilatory changes, 700
HERITAGE Family Study
findings, on exercise and leptin levels, 5, 7
Herpes simplex virus
HSV-1, alveolar macrophages and, after exercise, 1461
Hexokinase
activity
in grafted skeletal muscle, and contractile properties, in rat, 67
in skeletal muscle, in non-insulin-dependent diabetes (NIDDM), 166
Hiccups
hemodynamic effects, 371
High-density lipoproteins
postexercise levels, in hypercholesterolemic men, 2019
Hindlimb non-weight bearing
in rat
bone response to, 172
growth factor and exercise effects on muscle in, 1522
myonuclear number in skeletal muscle during, 1857
Histamine
airway responsiveness to, neuronal nitric oxide and, 1432
and anaphylactic vasoconstriction in isolated canine lung, 1508
bronchoprovocation, and ventilation distribution, 1907
and vasorelaxation in guinea pig lung explants, 1476
Histidine-proline diketopiperazine
in retrotrapezoid nucleus, respiratory stimulation by, 792
Hormone replacement therapy
effects on thermoregulatory and vasomotor function, in postmenopausal women, 477
Horses
oxygen uptake kinetics during exercise, 1235
sweat fluid and ion losses in, in exercise, 1133
Host defense
in cold stress, 1116
endurance training and, 845
exercise and, 1461
Hydralazine
effects on cardiopulmonary control in sleeping rat, 1954
Hydration
in mucociliary transport system regulation, 1360
postexercise, effects of alcohol on, 1152
and sweat fluid and ion losses, in prolonged exercise, in horses, 1133
and thermoregulation, during exercise-heat stress, 860
3-Hydroxyacyl-CoA dehydrogenase
activity, in skeletal muscle, in heart failure, 1291

Hydroxyl radicals
in apneic response to laryngeal exposure to wood smoke, in rat, 723
Hyperbaric oxygen
oxidative damage in lung and brain induced by, melatonin and, 354
Hypercapnic ventilatory response
female hormones and, 1706
Hypercarbia
airway-defensive responses to, in sleeping infants, 219
Hyperemia
exercise, nitric oxide and, in humans, 1785
reactive, nitric oxide and, in humans, 1785
Hypergravity
and aerosol deposition in lung, 2029
Hyperkalemia
exercise-related, 631
Hyperosmolarity
in mucociliary transport system regulation, 1360
Hyperoxia
dynamic hypercapnic response in, 466
oxygen uptake kinetics in, 1318
Hypertension
in deep breath-hold dives, 1282
Hyperthermia
stress-induced, nicotine and, in pregnant rat, 1612
Hyperventilation
heliox, during exercise, airway receptors and, 82
Hypervolemia
exercise-induced, 407
Hypoglossal nerve
respiratory output from, spiral nerve cuff electrode for, 317
Hypoglycemia
during exercise, and glucagon response, in rat, 148
Hyponatremia
exercise-associated, in Alaskan sled dogs, 824
Hypoosmolarity
in mucociliary transport system regulation, 1360
Hypopharyngeus muscle
respiratory-related activity, in cat, 1588
Hypotension
in endotoxic shock, 1164
hydralazine-induced, and cardiopulmonary control in sleeping rat, 1954
Hypothermia
model for, 1630, 1635
treatment, 1630, 1635
see also **Rewarming**
Hypoxemia
and lung mechanics, 451
Hypoxia
acclimatization to, combined with low-altitude training, effects on performance, 102
carbon monoxide, and ventilatory responses to hypoxia or hypercapnia, in rat, 253
chemosensitivity in, female hormones and, 1706
chronic, and pulmonary hypertension with monocrotaline, 25
chronic episodic, blood pressure response to, 95
effects, on lung mechanics, 451
end-expiratory lung volume and diaphragmatic activity in, vagal fibers in, 700
hypometabolic response to, effects of 2,4-dinitrophenol on, 537
isocapnic, ventilation during, haloperidol effects on, in humans, 1110
pulmonary vasoconstriction in
in dog, 451, 569
in ferret, 495
pulmonary vasoreactivity to serotonin during, 569
and redox behavior of cytochrome oxidase in rat brain, 1842
respiration in, nucleus of solitary tract neuromodulators and, 522
sustained isocapnic, ventilatory responses to, in men and women, 599
ventilatory response to
see also **Hypoxic ventilatory decline**
haloperidol effects on, in humans, 1110
in Han-Tibetans, 661, 2098
in rat, 537
Hypoxic ventilatory decline
haloperidol effects on, in humans, 1110
in Han-Tibetans, 2098
Hysteresivity
lung, 1418, 1420

I

ICI-118551
effects on skeletal muscle β-adrenergic receptor density and force, 459
IDDM, *see* **Diabetes mellitus, insulin-dependent (type I)**
Immune response, *see* **Host defense**
Immunoglobulin
IgA, in saliva, during training, effects of bovine colostrum supplementation on, 1144
IgE, in airway hyperresponsiveness, 1276
IgG, during training, effects of bovine colostrum supplementation on, 1144
Indicator dilution technique
for pulmonary microcirculation in rat, 543
Indomethacin
and anaphylactic vasoconstriction in isolated canine lung, 1508
Infection
see also **Sepsis**
respiratory, after exercise, 1461
Inflammation
airway, airway hypercontractility in, 1216
in endotoxic shock, glucose modulation of, 1566
pulmonary, with acid aspiration, 1090
Insulin
effects, on splanchnic fat metabolism, in canine diabetes model, 1339
response to, in skeletal muscle of exercise-trained rat, 2043
signaling, assessment, in vivo, 718
Insulin-dependent (type I) diabetes mellitus (IDDM), *see* **Diabetes mellitus, insulin-dependent (type I)**
Insulin-like growth factor-I
effects
on myonuclear number in chronically unloaded skeletal muscle, 1857
on non-weight-bearing muscles, in rat, 1522
during training, effects of bovine colostrum supplementation on, 1144
Insulin resistance
glycolytic and oxidative capacity of skeletal muscle and, in non-insulin-dependent diabetes (NIDDM), 166
Interleukins
IL-1, and fever genesis, 359
Interstitial cells
and mechanical status of lung parenchyma, 1418, 1420
Interstitial fluid
colloid osmotic pressure, after exercise, 407
hydrostatic pressure, after exercise, 407
Intestine, small
absorption from, in different segments, during exercise, 204
Intrathoracic pressure
transient changes, hemodynamic effects, 371
Ion loss
in prolonged exercise, in horses, 1133
Ion transport
in fetal lung, 1538
mucociliary transport system and, 1348
Ischemia-reperfusion
in circulation-arrested lung, 247
lung injury caused by
in circulation-arrested donor, 247
modified preservation solutions and, 583
protective effect of liquid ventilation and, 1666
splanchnic, downstream effects on renal function and eicosanoid release, 530
Isoprenaline
and myocardial calcium homeostasis, 652
Isoproterenol
effects, on vascular pressure-induced permeability increases in isolated rat lungs, 1962
Isotopomer analysis
carbon-13, of skeletal muscle metabolism, in rat, 32

J

Jejunum
absorption from, during exercise, 204

K

Kidney
blood flow, and splanchnic ischemia-reperfusion injury, in rat, 530
function, splanchnic ischemia-reperfusion injury and, 530
Knee extensor muscles
dynamic exercise, ultrasound Doppler estimates of femoral artery blood flow during, 1383
mechanical power output, in humans, 1749
Knockout mice
P-selectin-deficient, 679, 681
Kussmaul's sign
in pericardial disease, 1797, 1799

L

Lactate
blood levels, in deep breath-hold dives, 1282
oxidation, in skeletal muscle, 32
Lactate dehydrogenase
activity, in skeletal muscle, in heart failure, 1291
Lactation
thermoregulation during, in rat, 837
Lactic acidosis
and urinary calcium excretion, 1159
Lamb, *see* **Newborn, mammalian**
Laryngeal nerve
recurrent, cricopharyngeus muscle motor innervation by, 89
superior, section, and upper airway distortion, 768
Larynx
irritation, ventilatory responses to, in rat, 723
sensory inputs from, effects on firing of respiratory-associated midbrain neurons, 196
Latissimus dorsi muscle
trained, mechanical properties, 398
variable-frequency train stimulation of, in dog, 994
Least squares
models, collinearity problems in, 2167
Leg
blood flow, Doppler ultrasound estimates of, 1383
Leptin
levels, and exercise, in humans, 5, 7
Leukocytes
recruitment, stress-induced, 1492
Lipids
metabolism, splanchnic, in canine diabetes model, 1339
peroxidation
and exercise performance, 746
in muscle fatigue and recovery, 354
in resting and exercise-induced oxidative stress, effects of fish oil and vitamin E supplementation on, 189
postexercise levels, in hypercholesterolemic men, 2019
Lipopolysaccharide, *see* **Endotoxin**
Lipoproteins
postexercise levels, in hypercholesterolemic men, 2019
Liposomes
for macrophage depletion in lamb, 1499
Liquid ventilation
with perfluorochemicals, 1017, 1666
during shock, 1666
Liver
blood flow, in endotoxic shock, 1566
Locomotion
cardiac-mediated attenuation of, in decerebrate cats, 113
overground, cardiovascular responses to, 1454
Low-density lipoproteins
postexercise levels, in hypercholesterolemic men, 2019
Lower extremity
muscle activation, during running, 262, 2073
LPS (lipopolysaccharide), *see* **Endotoxin**
Lung
aerosol deposition in
effect of convective stretching and folding on, 800
gravity and, 2029
aerosol dispersion in, bolus tests, numerical simulations and experimental data, 966
air and liquid volumes, electrical impedance tomography of, 1762
anaphylactic vasoconstriction, in isolated canine preparation, 1508
blood flow, *see* **Pulmonary circulation**
capillary filtration coefficient
in anaphylaxis, 1508
in circulation-arrested donor, 247
isoproterenol and, in rat, 1962
optical measurement of, 1976
capillary recruitment and transit time, in rat, 543
diffusing capacity, estimation, 1397
elastance, 1192
in emphysema, 179
endotoxin priming in, in perfused preparation from rabbit, 18
explants, vasorelaxation in, 1476
fetal, liquid production, nitric oxide effects on, 1538
fibrosis, mechanical stress and, in rat, 1697
flow-induced vasodilation in, 495
function
see also **Respiratory mechanics**
monitoring, 1762
gas compression in, and peak expiratory flow, 1517
hemodynamics, macrophage depletion and recovery and, 1499
inflammation, with acid aspiration, 1090
inflation
and extracellular matrix components, 120
and parenchymal growth factors, 120
intrapleural pressure, respiration and, 2123
intravascular macrophages, depletion, 1499
maturation, prenatal corticosteroid therapy and, 213
mechanical stress-induced gene expression, in rat, 1697
mechanics
see also **Respiratory mechanics**
continuous positive airway pressure and, 591
in hypoxia, 451
linear viscoelastic model, 1418, 1420
mechanoreceptor feedback, in neonatal rat, 1607
microcirculation, in rat, 543
oxidative damage induced by hyperbaric oxygen, melatonin and, 354
parenchyma
dynamic properties of, 1418, 1420
extracellular matrix component mRNA, inflation and, 120
growth factor mRNA, inflation and, 120
shear modulus, and airway resistance, 140
peak expiratory flow
effects of gas compression in, 1517
in normal and asthmatic subjects, 1721
peak flow-determining factors, 1517, 1721
postnatal function, corticosteroids and, in preterm lambs, 213
resistance, 1595
airway constriction and, 1192
in emphysema, 179
in primate model of asthma, 1690
septic, endothelial permeability in, 1941
tissue, resistance, in primate model of asthma, 1690
tissue resistance, 1595
water transport, and aquaporin-1 distribution in pulmonary air spaces, 1002
Lung disease
obstructive
see also **Chronic obstructive pulmonary disease**
exercise performance and recovery in, 1641
Lung impedance
see also **Respiratory mechanics**
airway constriction and, 1192
input impedance, in cynomolgus monkeys, 1690
monitoring, 1762
regional mechanical, 1595
transfer impedance, in cynomolgus monkeys, 1690
Lung injury
acid aspiration, 1090
acute, protective effect of liquid ventilation and, 1666
airway hypercontractility in, 1216
hyperoxic, manganese superoxide dismutase treatment of, 550, 559
ischemia-reperfusion
in circulation-arrested donor, 247
modified preservation solutions and, 583
protective effect of liquid ventilation and, 1666
in preterm newborn, 1054
vascular, in premature newborn, 1307
Lung transplantation
circulation-arrested donors, ischemia-reperfusion injury in, 247
Lung volume
monitoring, electrical impedance tomography for, 1762
Lung volumes
end-expiratory
and exercise capacity, 503
hypoxia-induced increases, vagal fibers in, 700
in newborn, surfactant protein and, 1849
Lung water
monitoring, 1762
Lymphocytes
recruitment, stress-induced, 1492
Lysophosphatidic acid
and bronchoconstriction, 1216

M

Macrophages
alveolar, in host defense, 1461
depletion and recovery, and effect of particles on lung hemodynamics, 1499
modulation of NK cell activity, in exercise-stressed mice, 845
suppressor, cold acclimation and, 1116

Magnetic resonance imaging
see also **Nuclear magnetic resonance spectroscopy**
of human neck muscles, with resistance training, 2105
of muscle, during contraction, 867
proton transverse relaxation time (T2), measurement for physiological experiments, 904
of skeletal muscle, in multiple sclerosis, 1998
of skeletal muscle activation, during running, 262, 2073
Malate dehydrogenase
activity, in skeletal muscle, in heart failure, 1291
Males, *see* **Gender differences**
Malonyl-CoA
in skeletal muscle, endurance training and, 1917
skeletal muscle, exercise intensity and, 1104
Manganese superoxide dismutase
aerosolized, in hyperoxic lung injury treatment, 550, 559
Mast cells
in exercise-induced asthma, 1884
Mathematical modeling
allometric, 2158
of diaphragm structure and shape, 1486
of frequency-response function, 2146
of mammalian acid-base equilibria, 297
of phosphocreatine resynthesis, 2169
polynomial models, 2146
of pulmonary microcirculation, 1711
for transfer function analysis, 2146
Maturation
thermoregulation during, in guinea pigs, 830
Mayer waves
and syncope, 383
Melatonin
effects, on oxidative damage in lung and brain, 354
thermoregulatory effects, 134
Membrane potential
and trauma-induced changes in skeletal muscle, 1096
Men, *see* **Gender differences**
Menstrual cycle
midfollicular phase, and training-induced platelet functional changes, 2080
Mesencephalon
respiratory-associated neurons, upper airway sensory inputs to, 196
Messenger RNA
for extracellular matrix components, in lung parenchyma, with lung inflation, 120
for growth factors, in lung parenchyma, with lung inflation, 120
interstitial protein, mechanical stress and, in rat lung, 1697
myosin heavy chain, RT-PCR analysis, 1389
Metabolism
anaerobic, during running, 262, 2073
in endotoxic shock, glucose modulation of, 1566
estimation, by body acceleration, 2112
during hypoxia or hypercapnia, in rat exposed to CO hypoxia, 253
phosphocreatine, in muscle, circuit models of, 2169
postexercise, regulation, in trained and untrained subjects, 153
Methacholine
airway responsiveness to, 366, 1418, 1420
in cynomolgus monkeys, 1690
in P-selectin-deficient mice, 679, 681
Methodologies
for approximate entropy analysis of mixing in stretch and fold flow fields, 800
for computational model, of mucosal folding in airways, 1814
for electrical impedance tomography of lung air and liquid volumes, 1762
for examination of physical surface properties of surfactants, 1849
for finite-element analysis, of mucosal folding in airways, 1814
for fractal analysis of myocardial perfusion in shock, 1832
for gel electrophoresis, of myofibrillar protein, 280
for gravimetric measurement of pulmonary filtration coefficient, 1976
for immunohistochemistry, of myosin heavy chain in functionally overloaded skeletal muscle fibers, 280
for inhalation studies in anesthetized animals, 1768
for Mehrdraht-Dortmund-Oberfläche electrode measurements, 1681
for multiple-breath washout experiments, 1907
for multiple inert-gas-exchange technique, 884
for nonlinear systems identification, 975
for optical measurement of pulmonary filtration coefficient, 1976
for power spectrum analysis, during respiration, 317, 383
for quantitative histology, 1499
for respiratory output recordings, spiral nerve cuff electrode for, 317
for sonomicrometer implantation in sheep diaphragm, 1733
for telemetry, in sleeping rat, 1602
for tissue and capillary oxygen partial pressure measurements in canine skeletal muscle, 1681
for transcutaneous blood-gas monitoring, 1184
for ultrasound, of diaphragm dimensions, 291
for video-assisted thoracoscopic surgery, in sheep, 1733
Mice
acid aspiration injury in, 1090
aging, endurance exercise modulation of neuromuscular junction in, 59
bronchoconstriction in, ET_B receptor in, 46
exercise-stressed, macrophage modulation of NK cell activity in, 845
muscle nitric oxide synthases in, 348
transgenic, acid aspiration in, 1090
Microcirculation
pulmonary, in rat, 543
Microgravity
and aerosol deposition in lung, 2029
atrial distension in humans during, 1862
cardiac output in, 810
diffusing capacity in, 810
effects on cerebral hemodynamics during orthostatic stress, 2139
lung tissue volume in, 810
Mitral stenosis
effective arterial elastance in, 1083
Modeling in physiology
of acid-base equilibria, 297
allometric, 2158
of diaphragm geometry, 1123
of energy expenditure in physical activity, 2112
of frequency-response function, 2146
heat strain models for protective clothing, comparison of, 1017
of hypothermia, 1630, 1635
log-linear, collinearity in, 2167
morphometric, of inhomogeneous airway constriction, 1192
of mucosal folding in airways, 1814
multicomponent, of whole body composition, 623
of phosphocreatine resynthesis, 2169
polynomial models, 2158
of pulmonary blood flow, 1370
for transfer function analysis, 466, 2146
of ventilatory stability to transient CO_2 disturbances, 466
viscoelastic, of lung parenchyma, 1418, 1420
Monkeys
airway and tissue resistances in, 1690
central command in, in exercise, 1448
Monocrotaline
pulmonary hypertension with, in rat model of chronic mountain sickness, 25
Motoneurons
and abdominal muscle anticipatory reactions in postural tasks, 753
hypoglossal, laryngeal afferents and, 1890
phrenic, firing rates, during prolonged inspiratory resistive loading, 776
Motor control
and abdominal muscle anticipatory reactions in postural tasks, 753
of speech, in humans, 1438
Mucociliary transport system
ion transporters and, 1348, 1360
regulation, in dog, 1360
Mucosa
oral, smokeless tobacco-induced macromolecular efflux from, attenuation by ACE, 74
Mucus
airway, in ferret, 761
transport, ion transporters and, 1348
Multiple sclerosis
skeletal muscle characteristics in, 1998
Muscle, respiratory
see also **Diaphragm**
activity, during continuous positive airway pressure, 591
during exercise, in humans, 1242, 1256
expiratory, anticipatory reactions in, 753
fatigue
in piglet, 1654
during prolonged inspiratory resistive loading, 776
kinematics, in humans, 1242, 1256
mechanics, 1486
in dog, 1068

motions, during tidal breathing, 1531
motor control, 776
nitric oxide synthases in, 348
recruitment, respiratory effort sensation during exercise and, 936
reserve, during exercise, in rat, 1405
Muscle, skeletal
abdominal, anticipatory reactions in postural tasks, 753
acetyl-CoA carboxylase, activity, exercise intensity and, 1104
activation
magnetic resonance imaging of, 904
during running, 262, 2073
β-adrenergic-receptor density, with chronic β-blockade, 459
arteriolar vasodilation, in heart failure, 1933
atrophy, during chronic unloading, countermeasures for, 1857
biochemistry, in heart failure, 1291
biopsy, in multiple sclerosis, 1998
blood flow
in canine gastrocnemius muscle, 1867
during dynamic exercise, 1575
during exercise, 1223, 2037
nitric oxide and, in human limbs, 1785
catchlike property, 994
composition, in multiple sclerosis, 1998
concentric contraction, efficiency in vivo, in humans, 867
contractile apparatus, 444
contractile function
calcium uptake and, in fatigue, 511
nitric oxide donor and, 1326
contractile properties, with chronic β-blockade, 459
contraction, 2131
eccentric moment generation in, 40
energy cost of, 1557
injury induced by, in rat, 817
stretch-induced enhancement of, 1741, 1749
contraction time, 2131
countermovement, mechanical work production in, 1741, 1749
cross-bridge mechanism in, stretch and, 1741, 1749
eccentric contraction
efficiency in vivo, in humans, 867
stretch-induced enhancement of, 1741, 1749
eccentric strength, age and gender comparisons in humans, 1581
efficiency, in vivo, in humans, 867
electrical stimulation
functional, 333
mechanical properties after, 398
motor unit recruitment and microvascular perfusion in, 1223
exercise-induced damage, 1482
troponin I in, 1076
fatigue, 444
calcium uptake and contraction in, 511
in canine gastrocnemius muscle, 1867
in multiple sclerosis, 1998
sodium bicarbonate and, 333
fiber distribution, and motor unit recruitment and microvascular perfusion, 1223
fiber size, in functional overload, 280
fiber type conversion, in functional overload, 280
fiber types
alterations, in heart failure, 1291
in multiple sclerosis, 1998
glucose transport, and glycogen level, 429
glycogen
accumulation after exercise, 897
and glucose transport, 429
repletion after exercise, in men and women, 1877
glycolytic capacity, in non-insulin-dependent diabetes (NIDDM), 166
grafting, and contractile properties, in rat, 67
histology, in heart failure, 1291
human
maximal voluntary contraction, 875
in neck, adaptation to resistance training, 2105
normalized metabolic stress for dynamic exercise studies, 875
volume, 875
hypertrophy, in functional overload, 280
insulin responsiveness, in exercise-trained rat, 2043
isometric contraction
efficiency in vivo, in humans, 867
sodium bicarbonate and, 333
limb, nitric oxide synthases in, 348
malonyl-CoA, exercise intensity and, 1104
malonyl-CoA in, endurance training and, 1917
mass
and aging, 229
aging and, in rat, 1270
ethnicity and, 229
gender differences, 229
mechanics, in intermittent voluntary isometric contractions, 1557
membrane, trauma-induced changes in, 1096
metabolism
circuit models of, 2169
^{13}C-nuclear magnetic resonance spectroscopic analysis, 32
motor unit recruitment and microvascular perfusion in, 1223
in multiple sclerosis, characteristics of, 1998
myosin heavy chain mRNA expression, RT-PCR analysis of, 1389
needle biopsy, in humans, 718
oscillatory work loops, 398
oxidative capacity, in non-insulin-dependent diabetes (NIDDM), 166
partial pressure of oxygen in, hemoglobin oxygen affinity and, 1681
performance, sodium bicarbonate and, 333
phosphatidylinositol 3-kinase, in humans, 718
posttetanic potentiation in, 2131
recovery, sodium bicarbonate and, 333
regeneration
aging and, 1623
aging and, in rat, 1270
myogenic regulatory factors during, 1270
regional intramuscular pressure development, 1867
relaxation rate, in intermittent voluntary isometric contractions, 1557
series elasticity, 40
sodium pump reduction in heart failure, in rat, 323
stimulation, during shortening contractions, 994
strength, 40
creatine intake and, 2055
in multiple sclerosis, 1998
stretch, mechanical properties after, 398, 1741, 1749
sympathetic nerve activity, femoral arterial injection of adenosine and, 1043, 1045
temperature, and oxygen uptake kinetics during exercise, 1333
twitch, posttetanic potentiation, 2131
vasoconstriction, during dynamic exercise, 1575
Muscle, smooth
airway
contractile mechanisms, 731, 739
contractility, lysophosphatidic acid and, 1216
mechanical response to length oscillation, 731, 739
myogenic contractile responses, in humans, 1276
stretch, and airway responsiveness in mechanically ventilated rabbit, 1202
bronchial, myogenic contractile responses, in humans, 1276
tracheal, mechanical response to length oscillation, 731
Myocardium
contractility, in humans, 712
perfusion
fractal analysis, in shock, 1832
spatial heterogeneity, in shock, 1832
Myoglobin
in exercise-induced muscle damage, 1076
Myosin heavy chain
in exercise-induced muscle damage, 1076
isoforms, in rat diaphragm, 1062
mRNA expression, RT-PCR analysis, 1389
in non-weight-bearing muscle, in rat, 1522
plasticity, in functionally overloaded skeletal muscle fibers, 280

N

Natural killer (NK) cells
activity, macrophage modulation of, 845
β-receptor blockade and, 1492
Near-infrared spectroscopy
of cytochrome oxidase, in living tissue, 1842
Neuromuscular junction
aging, endurance exercise and, 59
Neurons, *see* **Motoneurons**
Neutrophils
in acid aspiration, 1090
in bacterial pneumonia, recombinant granulocyte colony-stimulating factor and, 1467
margination, in pulmonary vasculature, 1711
in pulmonary vascular injury and edema in premature newborn, 1307
recruitment, stress-induced, 1492

Newborn
lung mechanics, surfactant protein and, 1849
mammalian
lung hemodynamics, macrophage depletion and recovery and, 1499
perfluorochemical elimination from respiratory system in, 1017
pulmonary vascular injury and edema in, 1307
response to captopril, renal nerves and, 414
thermoregulation in, 830
respiration in, 1890
surfactant responses, tidal volume effects on, 1054
ultrasound evaluation of diaphragm in, 1654
Nicotine
cardiac receptors sensitive to, stimulation, and locomotion in decerebrate cats, 113
and stress-induced hyperthermia in pregnant rat, 1612
NIRS, *see* Near-infrared spectroscopy
Nitric oxide
and blood flow distribution in endotoxemia, 1164
effects, on fetal lung liquid, 1538
and endothelial permeability, 1941
neuronal, and airway responsiveness to histamine, 1432
and oxygen extraction in endotoxemia, 1164
and training-induced platelet functional changes in women, 2080
and vasodilation, in human limbs, 1785
and vasorelaxation in guinea pig lung explants, 1476
Nitric oxide donors
effects, on skeletal muscle contractile function, 1326
intratracheal instillation, reduction of pulmonary hypertension by, 1968
Nitric oxide synthase
inhibition, and pulmonary endothelial permeability in sepsis, 1941
in muscle, 348
Nitrofen
congenital diaphragmatic hernia induced by, 338
Nonlinear autoregressive models, 975
Normoxia
dynamic hypercapnic response in, 466
Nose
sensory inputs from, effects on firing of respiratory-associated midbrain neurons, 196
Nuclear magnetic resonance spectroscopy
see also **Magnetic resonance imaging**
carbon-13, analysis of skeletal muscle metabolism, in rat, 32
phosphorus-31
of human skeletal muscle, during contraction, 867
of human skeletal muscle, normalized metabolic stress for dynamic exercise studies, 875
of muscle, during resistance training, 2055
of skeletal muscle, in multiple sclerosis, 1998
Nucleus of solitary tract
neuromodulators, and respiration in hypoxia, 522
Nutritional supplements
and muscle glycogen repletion after exercise, in men and women, 1877

O

Obesity
in non-insulin-dependent diabetes (NIDDM), skeletal muscle insulin resistance and, 166
Obstructive sleep apnea
development of, 1986
hemodynamic effects, 485
neural-mechanical coupling in, 1923
pharyngeal mechanics in, 851
pressor response to, neural mechanism of, 2048
systemic and pulmonary hemodynamic response to, 1671
Oral contraceptives
and cutaneous vasodilation, 2012
Organ perfusion
in endotoxic shock, 1164
Orthostasis
and cerebral blood flow, after adaptation to simulated microgravity, 2139
Osteocalcin
plasma levels, in castrated exercised rat, 129
Osteoporosis
rat model for, 129
Ouabain
and myocardial calcium homeostasis, 652
Oxidative stress
exercise-induced, effects of fish oil and vitamin E supplementation on, 189
and exercise performance, 746
Oxygen
see also **Hyperbaric oxygen; Hyperoxia; Hypoxia**
debt, during heavy submaximal exercise, factors affecting, 1318
deficit
during heavy submaximal exercise, factors affecting, 1318
during running, 262, 2073
delivery
in endotoxic shock, 1164
and redox behavior of cytochrome oxidase in rat brain, 1842
intra-arterial saturation, in Cheyne-Stokes respiration, 1184
mixed venous content, measurement, tracer bolus method, 884
partial pressure, in skeletal muscle, hemoglobin oxygen affinity and, 1681
supplemental, effects on exercise performance and recovery in cystic fibrosis, 1641
transport
during exercise, muscle temperature and, 1333
during heavy submaximal exercise, factors affecting, 1318
utilization
during exercise, muscle temperature and, 1333
during heavy submaximal exercise, factors affecting, 1318
Oxygen consumption
determination, in humans, 2064
excess postexercise, and recovery rate in trained and untrained subjects, 153
in hypoxic hypometabolism, in rat, 537
maximal
age-related decline, in women, 160
at high altitude, 661
Oxygen extraction
in endotoxemia, nitric oxide and, 1164
Oxygen extraction ratio
in skeletal muscle, 1681
Oxygen free radicals
in muscle fatigue and recovery, 354
Oxygen uptake
see also **Aerobic capacity**
age-related changes in, in women, 1947
kinetics
during exercise, in horse, 1235
during exercise, muscle temperature and, 1333
during heavy submaximal exercise, factors affecting, 1318
in hyperoxia, 1318
postexercise, regulation in trained and untrained subjects, 153
slow component of, in exercise, 1235, 1333
Oxyhemoglobin dissociation curve
and partial pressure of oxygen, in skeletal muscle, 1681
Ozone
and airway hyperresponsiveness to cigarette smoke, in guinea pigs, 958
HSP 72 induction by, in vivo, in guinea pigs, 707
tolerance, development of, 707

P

Peak expiratory flow
in normal and asthmatic subjects, 1721
Perfluorochemicals
elimination from respiratory system, analysis, 1017
evaporation rate, 1017
liquid ventilation with, 1017, 1666
thermal detector for, 1017
Pericardial constraint
coupled vs. uncoupled, effects on cardiac chamber interactions, 1797, 1799
Pericarditis
constrictive, hemodynamics in, 1797, 1799
Periodic breathing
during sleep onset, 2006
transient CO_2 disturbances and, in awake humans, 466
Permeability
airway, in ferret, 761
bronchovascular, α_1-adrenergic agonists and, in dog, 1884
pulmonary endothelial
anions in, 615
in sepsis, nitric oxide and, 1941
pulmonary microvascular, isoproterenol and, in rat, 1962
pulmonary vascular, in rat, 1697
Peroxynitrite
effects on surfactant preparations, 1545
Pharyngeal constrictor muscles
respiratory-related activity, in cat, 1588
Pharynx
mechanics, in inspiration, 851

sensory inputs from, effects on firing of respiratory-associated midbrain neurons, 196
velopharyngeal cross-sectional area, in inspiration, 851
velopharyngeal impedance, in obstructive sleep apnea, 851
Phosphatidylinositol 3-kinase
in human skeletal muscle, 718
Phosphocreatine
hydrolysis, in response to exercise, 631
resynthesis, modeling of, 2169
Phosphofructokinase
activity
in skeletal muscle, in heart failure, 1291
in skeletal muscle, in non-insulin-dependent diabetes (NIDDM), 166
Phrenic nerve
motoneuron firing rates, during prolonged inspiratory resistive loading, 776
respiratory output from, spiral nerve cuff electrode for, 317
transvenous pacing, 1654
Physical activity
energy expenditure in, estimation, by body acceleration, 2112
Pigs
hemodynamic effects of apneas in, 485
intratracheal instillation of nitric oxide donors in, reduction of pulmonary hypertension by, 1968
lateral pharyngeal fat pad pressure in, 688
maturing, respiration in hypoxia, 522
neonatal, ultrasound evaluation of diaphragm in, 1654
Plasma volume
in endurance-trained elderly subjects, 1300
expansion, after exercise, 407
Platelet-activating factor
and anaphylactic vasoconstriction in isolated canine lung, 1508
Platelets
adhesion, in women, effects of training and deconditioning on, 2080
aggregation, in women, effects of training and deconditioning on, 2080
function, in women, effects of training and deconditioning on, 2080
Pleural pressure
hemodynamic effects, 371
Pneumonia
acid aspiration, 1090
bacterial, survival, recombinant granulocyte colony-stimulating factor and, 1467
Polymerase chain reaction analysis
reverse transcriptase (RT-PCR), of myosin heavy chain mRNA expression, 1389
Polymorphonuclear cells, *see* **Neutrophils**
Posture
change, thermoregulatory effects, 134
Potassium channels
ATP-sensitive
and pulmonary vasoreactivity to serotonin during hypoxia, 569
and trauma-induced changes in skeletal muscle membrane, 1096
Potassium ions
homeostasis, in response to exercise, 631
total body, in assessment of skeletal muscle mass, 229
Prazosin
and skeletal muscle blood flow regulation during dynamic exercise, 1575
Prednisolone
and diaphragm muscle, 1062
Pregnancy
acid-base regulation in, in humans, 644
stress-induced hyperthermia during, nicotine and, in rat, 1612
thermoregulation during, in rat, 837
Preterm newborn
postnatal lung function and protein permeability, corticosteroids and, 213
pulmonary vascular injury and edema in, 1307
surfactant responses, tidal volume effects on, 1054
Primates
airway responsiveness in, 1690
central command in, in exercise, 1448
hyperoxic lung injury in, manganese superoxide dismutase treatment of, 550, 559
mucociliary transport system, ion transporters and, 1348
Progesterone
and cutaneous vasodilation, 2012
effects on thermoregulatory and vasomotor function, in postmenopausal women, 477
and hypoxic chemosensitivity, 1706
Prostaglandins
and fever genesis, 359
PGE_1, in preservation solution, for lung protection in ischemia-reperfusion, 583
production, in exercise-induced vasodilation in heart failure, 1933
Protein
oxidation, in resting and exercise-induced oxidative stress, effects of fish oil and vitamin E supplementation on, 189
Protein kinases
AMP-activated, exercise intensity and, 1104
P selectin
deficiency, and airway responses, in mice, 679, 681
Psoas muscle
in rabbit, contractile function, nitric oxide donor and, 1326
Pulmonary artery pressure
response to TxA_2, in endotoxin-primed lung, 18
Pulmonary capillaries
blood flow
factors affecting, 1711
modeling, 1370
pressure gradients, 1711
Pulmonary circulation
factors affecting, 1711
modeling, 1370
neonatal transition, 1538
Pulmonary edema
isoproterenol and, in rat, 1962
in premature newborn, 1307
in preterm lambs, prenatal corticosteroid therapy and, 213
in sepsis, 1941
Pulmonary hypertension
increased capillary filtration coefficient in, isoproterenol and, in rat, 1962
with monocrotaline, in rat model of chronic mountain sickness, 25
monocrotaline-induced, bosentan effects on, in rat, 1209
in rat, 1697
reduction, by intratracheal instillation of NO/nucleophile adduct, 1968
Pulmonary vasculature
anaphylactic constriction, in isolated canine lung, 1508
compliance, in hypoxia, serotonin and, 569
constriction, TxA_2-related, 18
histology, and pulmonary hypertension with monocrotaline, 25
relaxant responses, in guinea pig lung explants, 1476
resistance, in hypoxia, serotonin and, 569
responses to bronchoprovocation, with ragweed sensitization, 912
Pyruvate kinase
activity, after muscle damage, vitamin E and, 817

Q

Quadriceps femoris muscle
acetyl-CoA carboxylase activity, exercise intensity and, 1104
fatigue and recovery, sodium bicarbonate and, 333

R

Rabbits
ear, heat-induced vasodilation, arterial baroreflex modulation of, 2091
latissimus dorsi muscle, trained, mechanical properties, 398
lung, perfused preparation, endotoxin priming in, 18
mechanically ventilated, airway responsiveness in, 1202
muscle nitric oxide synthases in, 348
newborn, lung mechanics, surfactant protein and, 1849
posthemorrhagic antipyresis in, 359
responses to endotoxin, glucose modulation of, 1566
skeletal muscle, contractile function, nitric oxide donor and, 1326
Rats
adrenalectomized, vascular resistance in, 1648
age differences, in skeletal muscle regeneration, 1270
aging, and nerve-repair muscle grafting, 1623
brain, redox behavior of cytochrome oxidase in, 1842
cardiac failure in, and sodium pump reduction in skeletal muscle, 323
castrated exercised, bone metabolism in, 129
congenital diaphragmatic hernia in, nitrofen-induced, 338
diaphragm, contractile properties, 1062
exercised, glucagon response in, 148
exercise-trained, coronary artery contractile responsiveness in, 434
exercise training, and insulin responsiveness of skeletal muscle, 2043
extensor digitorum longus muscle, contraction-induced injury, 817

Rats (*continued*)
gastrocnemius muscle, grafting, and contractile properties, in rat, 67
heart failure model, skeletal muscle biochemistry and histology in, 1291
hindlimb non-weight bearing, *see* **Hindlimb non-weight bearing**
hypoxic hypometabolism in, 537
lactating, thermoregulation in, 837
laryngeal irritation in, ventilatory responses to, 723
lung
aquaporin-1 distribution in pulmonary air spaces, and water transport, 1002
capillary recruitment and transit time in, 543
circulation-arrested, ischemia-reperfusion injury, 247
mechanical stress-induced gene expression, 1697
vascular pressure-induced permeability increases, isoproterenol and, 1962
monocrotaline-induced pulmonary hypertension in, bosentan effects on, 1209
muscle nitric oxide synthases in, 348
neonatal, respiratory rhythm modulation in vitro, 1607
pregnant
thermoregulation in, 837
thermoregulatory responses, nicotine and, 1612
respiratory muscle reserve during exercise, 1405
resting and exercise-induced oxidative stress in, effects of fish oil and vitamin E supplementation on, 189
retrotrapezoid nucleus, thyrotropin-releasing hormone in, respiratory stimulation by, 792
skeletal muscle
β-adrenergic receptor density and force, with chronic β-blockade, 459
functional overload, 280
metabolism, ^{13}C-nuclear magnetic resonance spectroscopic analysis, 32
regeneration, myogenic regulatory factors in, 1270
sodium pump reduction, in cardiac failure, 323
sleeping
cardiopulmonary control in, and hydralazine treatment, 1954
cardiopulmonary effects of protoveratrines A and B in, 1602
susceptible to chronic mountain sickness, and pulmonary hypertension with monocrotaline, 25
ventilatory responses in, classic conditioning of, 1174
ventilatory responses to hypoxia or hypercapnia, 253
Red blood cells, *see* **Erythrocytes**
Rehydration
postexercise, effects of alcohol on, 1152
Renal artery
nerves, in blood pressure regulation, 95
Renal nerves
and response to captopril, in lambs, 414
Renin
plasma levels, with exercise-associated hyponatremia, in dog, 824
Renin-angiotensin system
in lambs, 414
Reproductive hormones
effects on thermoregulatory and vasomotor function, in postmenopausal women, 477
Resistance
airway, *see* **Airway, resistance**
pulmonary, *see* **Lung, resistance**
respiratory, in hypoxia, 451
vascular, in adrenalectomized rat, 1648
Respiration
abdominal muscle anticipatory reactions in, 753
in hypoxia, nucleus of solitary tract neuromodulators and, 522
inhalation studies in anesthetized animals, servo-controlled respiration system for, 1768
mechanics, in dog, 1068
midbrain neuronal regulation, upper airway input and, 196
in neonatal rat, 1607
pulmonary arterial input impedance and, 2123
during sleep, in hydralazine-treated rat, 1954
syncope and, 383
Respiratory control, *see* **Breathing, control of**
Respiratory distress syndrome
in premature newborn, 1307
prenatal corticosteroid therapy effects on, 213
in preterm newborn, prevention, 1054
Respiratory effort sensation
and cortical evoked potentials, 918
during exercise, and respiratory muscle recruitment, 936
Respiratory exchange ratio
postexercise, in trained and untrained subjects, 153
Respiratory infection
after exercise, 1461
Respiratory instability
in sleep, 1986, 2006
Respiratory kinematics
in humans, 1242, 1256
Respiratory mechanics
in emphysema, in dog, 179
Retrotrapezoid nucleus
focal acidosis in, and central chemoreceptor sensitivity, 420
thyrotropin-releasing hormone in, respiratory stimulation by, 792
Rewarming
forced-air, efficacy of, 1635
inhalation, efficacy of, 1635
rate, 1630
Rib cage
distortion, during respiration, in humans, 1242, 1256
mechanics, in exercise, 1242, 1256
RLN, *see* **Laryngeal nerve, recurrent**
Running
anaerobic capacity and muscle activation during, 262, 2073
hormonal and metabolic responses of women to, across time of day and menstrual cycle phase, 1822
and muscle GLUT-4, 1482
performance, after high-altitude acclimatization combined with low-altitude training, 102

S

Sarcoplasmic reticulum
function, and skeletal muscle fatigue, 444, 511
Selectins
see also **P selectin**
in acid aspiration, 1090
Semitendinosus muscle
fatigue and recovery, in frogs, 444
Sepsis
see also **Shock, septic**
hyperdynamic, pulmonary endothelial permeability in, 1941
survival, recombinant granulocyte colony-stimulating factor and, 1467
Serotonin
pulmonary vasoreactivity to, during hypoxia, 569
Servo-controlled respiration system
for inhalation studies in anesthetized animals, 1768
Shear stress
pulmonary arterial response to, in cat, 1617
pulmonary vasodilation in response to, 495
Sheep
airway wall edema in, and airway reactivity, 784
cricopharyngeus muscle, motor innervation by recurrent laryngeal nerve, 89
diaphragmatic function, recovery after thoracic surgery, 1733
lung, hemodynamics, macrophage depletion and recovery and, 1499
neonatal, *see* **Newborn, mammalian**
video-assisted thoracoscopic surgery in, 1733
Shivering
during hypoxia or hypercapnia, in rat exposed to CO hypoxia, 253
Shock
endotoxic
blood flow distribution and oxygen extraction in, nitric oxide and, 1164
glucose modulation of, 1566
hemorrhagic, protective effect of liquid ventilation with, 1666
liquid ventilation during, 1666
myocardial perfusion in
fractal analysis of, 1832
spatial heterogeneity, 1832
septic, survival, recombinant granulocyte colony-stimulating factor and, 1467
Sinoaortic denervation
effects on cardiovascular response to overground locomotion in cat, 1454
Skin
blood flow to
arterial baroreflex modulation of, in rabbit, 2091
nitric oxide and, in human limbs, 1785
oral contraceptive hormones and, 2012
in postmenopausal women, hormone replacement therapy and, 477

Sleep
airway resistance during, gender differences in, 1986
arousal and airway defense in, in infants, 219
cardiopulmonary control in, hydralazine-induced hypotension and, in rat, 1954
disturbances, and helium-nitrogen-oxygen breathing during dives, 575
non-rapid-eye-movement (NREM)
breathing in, 1923
obstructed breathing during, hemodynamic response to, 1671
rapid-eye-movement (REM)
neural-mechanical coupling of breathing in, 1923
obstructed breathing during, hemodynamic response to, 1671
Sleep apnea
see also **Obstructive sleep apnea**
and pharyngeal airway, in porcine model, 688
Sleep apnea index
in rat, protoveratrines A and B and, 1602
Sleep onset
ventilation during
and EEG-defined arousal, 2006
gender differences in, 1986
SLN, *see* **Laryngeal nerve, superior**
Sodium bicarbonate
effects on muscle fatigue and recovery, 333
Sodium ions
conductance, and trauma-induced changes in skeletal muscle, 1096
in mucociliary transport system regulation, 1360
Sodium nitroprusside
and coronary endothelium-mediated vascular reactivity, in exercise-trained rat, 434
effects on skeletal muscle contractile function, in rabbit, 1326
Sodium-potassium ATPase
mucociliary transport system and, 1348
in skeletal muscle, in cardiac failure, in rat, 323
Sodium-potassium-chloride cotransporter
mucociliary transport system and, 1348
Solutes
absorption, from different intestinal segments, during exercise, 204
Spaceflight, *see* **Microgravity**
Speech
motor control of, in humans, 1438
Sports
performance, after high-altitude acclimatization combined with low-altitude training, 102
Stability
in physiological control systems, 975
statistical analysis of, equilibrium states and, 975
Stellate ganglion
and airway responsiveness to histamine, 1432
Stroke volume
during exercise, 1900
increase, during static exercise with fixed heart rate in humans, 712
intrathoracic pressure and, 371
Sudden infant death syndrome
and arousal and airway defense in sleeping infants, 219
Superoxide dismutase
for hyperoxic lung injury, 550, 559
Surfactant
calf lung extract, 1545
inhibition, by copper-zinc superoxide dismutase, 1545
replacement therapy, 1545
responses to, in preterm newborn, tidal volume effects on, 1054
synthetic, 1545
Surfactant proteins
SP-A, in surface activity of surfactant, 1545
SP-B, and lung mechanics, in newborn, 1849
SP-C, and lung mechanics, in newborn, 1849
Swallowing
recurrent laryngeal nerve paresis and, 89
Sweat rate
during exercise-heat stress, hydration and, 860
oral contraceptive hormones and, 2012
in prolonged exercise, in horses, 1133
Symmetry
in physiological control systems, 975
Sympathetic nervous system
adenosine and, 1043, 1045
and apnea-induced pressor response, 2048
in response to chronic episodic hypoxia, 95
Syncope
vasomotor instability preceding, 383

T

Tachykinins
in ozone-induced airway hyperresponsiveness to cigarette smoke, 958
Temperature, body
see also **Febrile response; Hyperthermia; Hypothermia**
core
afterdrop, 1630, 1635
and sleepiness, 134
distal skin, and sleepiness, 134
proximal skin, and sleepiness, 134
regulation, *see* **Thermoregulation**
Thermogenesis
shivering, 1630, 1635
Thermoregulation
after hemorrhage, 359
autonomic
in guinea pigs, 830
in rat, 837
behavioral
in guinea pigs, 830
in rat, 837
during exercise-heat stress, hydration and, 860
during hypoxia or hypercapnia, in rat exposed to CO hypoxia, 253
during lactation, in rat, 837
during maturation, in guinea pigs, 830
melatonin and, 134
nicotine and, in pregnant rat, 1612
oral contraceptive hormones and, 2012
in postmenopausal women, hormone replacement therapy and, 477
postural change and, 134
during pregnancy, in rat, 837, 1612
in prolonged exercise, in horses, 1133
and sleepiness, 134
vasodilation in, arterial baroreflex modulation of, in rabbit, 2091
Thermotolerance
heat shock proteins and, 1413
Thoracic impedance
monitoring, 1762
regional electrical, after exercise, 11
Thoracotomy
diaphragmatic function after, in sheep, 1733
Thromboxane
in anaphylactic vasoconstriction, in isolated canine lung, 1508
TxA_2, pulmonary vascular response to, 18
Thyroarytenoid muscle
respiratory-related activity, in cat, 1588
Thyropharyngeus muscle
respiratory-related activity, in cat, 1588
Thyrotropin-releasing hormone (TRH)
in retrotrapezoid nucleus, respiratory stimulation by, 792
Tibialis anterior muscle
contractile efficiency, in humans, in vivo, 867
Tidal volume
and airway responsiveness, in mechanically ventilated rabbit, 1202
effects on surfactant responses, 1054
in newborn, surfactant protein and, 1849
Tobacco
smokeless, macromolecular efflux from oral mucosa induced by, 74
α-Tocopherol, *see* **Vitamin E**
Tolerance
ozone-induced, development of, 707
Trachea
airway surface liquid, in ferret, 761
smooth muscle, mechanical response to length oscillation, 731
pharmacological modulation of, 739
Transfer function analysis
applied, 2146
regression model for, 2146
Troponin I
after exercise-induced muscle damage, 1076
Tumor necrosis factor
plasma levels, in endotoxic shock, 1566
Tumor necrosis factor-α
in endotoxic shock, 1164
release, in endotoxin-primed lung, 18

U

U-74389G
in preservation solution, for lung protection in ischemia-reperfusion, 583
Ultrasound
of cerebrovascular circulation, 1184
Doppler
of cerebrovascular circulation, 1184
of leg blood flow, 1383
evaluation of diaphragm, 1654
University of Wisconsin solution
additives, for lung protection in ischemia-reperfusion, 583
Urine
composition, with exercise-associated hyponatremia, in dog, 824

V

Vagus nerves
and airway responsiveness to histamine, 1432
C fibers, in hypoxia-induced increases in EELV and diaphragmatic activity, 700
pulmonary afferents, in neonatal rat, 1607
and respiratory rhythm modulation, in neonatal rat, 1607
Vascular resistance
in adrenalectomized rat, 1648
Vascular smooth muscle
contractile responsiveness, in exercise-trained rat, 434
Vasoconstriction
anaphylactic, in isolated canine lung, 1508
in skeletal muscle, during dynamic exercise, 1575
Vasodilation
cutaneous, oral contraceptive hormones and, 2012
endothelial NO-mediated, in guinea pig lung explants, 1476
exercise-induced, in heart failure, prostaglandin production in, 1933
nitric oxide and, in human limbs, 1785
in postmenopausal women, hormone replacement therapy and, 477
skeletal muscle, during exercise, 2037
in thermoregulation, arterial baroreflex modulation of, in rabbit, 2091
Vasomotor function
in postmenopausal women, hormone replacement therapy and, 477
Vasomotor instability
before syncope, 383
Vasopressin
plasma levels, with exercise-associated hyponatremia, in dog, 824
response to exercise after coca-induced body fluid shifts, 376
Ventilation
distribution, during histamine provocation, 1907
haloperidol effects on, in humans, 1110
at high altitude, 661
in hypoxia, vagal fibers in, 700
during hypoxia or hypercapnia, in rat exposed to CO hypoxia, 253
inhalation studies in anesthetized animals, servo-controlled respiration system for, 1768
in newborn, surfactant protein and, 1849
in preterm newborn, 1054
and pulmonary heat exchange, 668
Ventilation-perfusion ratio
and multiple inert-gas-exchange technique, 884
Ventilatory instability
in humans, 466
Video-assisted thoracoscopic surgery
diaphragmatic function after, in sheep, 1733
Video microscopy
in rat lung, 543
Viral infection
host defense against, after exercise, 1461
Viscerosomatic reflex
and locomotion in decerebrate cats, 113
Vitamin E
in prevention of enzyme loss after muscle damage, 817
supplementation
effects on resting and exercise-induced oxidative stress, 189
and exercise performance, 746
Vocalization
motor control of, in humans, 1438

W

Water
compartments, in endurance-trained elderly subjects, 1300
intra- and extracellular, in endurance-trained elderly subjects, 1300
total body, validation, 623
transport, and aquaporin-1 distribution in pulmonary air spaces, 1002
turnover, with exercise-associated hyponatremia, in dog, 824
Water balance
mucociliary transport system and, 1348, 1360
postexercise, 1152
Water immersion
central blood volume expansion in, in humans, 695
Women, *see* **Gender differences**

X

Xenon-133 washout
in emphysema, in dog, 179

Author Index to Volume 83

A

Aalto, J., 1144
Abdul-Hussain, M. N., 348
Adamicza, Á., 1595
Adams, L., 1438
Adler, A., 1762
Agapito, M. T., 354
Ågren, J., 189
Aizawa, H., 1432
Albertine, K. H., 1307
Alberts, M. K., 240
Aliverti, A., 1242, 1256
Allan, D. W., 338
Allen, D. L., 1857
Altringham, J. D., 398
Ameredes, B. T., 1867
Amonchot, A., 1300
Amyot, R., 1762
Andreoni, K. A., 1671
Angelillo, M., 1486
Anthony, A.-R., 867
Aoki, T., 46
Ardell, J. L., 1370
Artner-Dworzak, E., 1076
Ashizawa, N., 1159
Asp, S., 1482
Asztalos, T., 1595
Atalay, M., 189

B

Babb, T. G., 312
Bacher, J., 1467
Baekey, D. M., 391
Balaban, R. S., 867, 875
Baldwin, K. M., 1389
Ball, P., 1551
Banks, S., 1467
Bålfors, E. M., 1184
Bao, G., 95
Barlet, J.-P., 129
Barman, S. A., 569
Barnas, G. M., 179
Barstow, T. J., 1235, 1333
Bartula, L., 530, 530
Bates, J. H. T., 1762
Batterham, A. M., 2158, 2167
Baumgartner, R. N., 229
Beaudeux, J.-L., 1566
Beaumont, M., 591
Becker, R. M., 247
Béliveau, L., 459
Beloucif, S., 1799
Benditt, J. O., 291
Benson, J. E., 1654
Berg, J. T., 120
Bergeron, R., 148
Bernard, C., 1566
Berthiaume, Y., 1762
Bertocci, L. A., 32
Bice, D., 912
Bidani, A., 240
Bigbee, A. J., 2086
Bigler, A. H., 884
Bina, S., 1822
Binder-Macleod, S. A., 994
Bishop, M. J., 240
Bishop, V. S., 2091
Bland, R. D., 1307
Blank, S. E., 845
Bloomfield, S. A., 172
Bogaard, J. M., 1721
Bogdanis, G. C., 2169
Bonora, M., 253, 700
Booke, M., 1941
Booth, F. W., 1270
Booth, J., 511
Borek, A. M., 1068, 1486
Bosman, M., 1877
Bouchard, C., 5
Bouvier, M., 459
Bozanich, A., 1954
Brackel, H. J. L., 1721
Bracy, D. P., 1339
Bradley, W. E., 1681
Brahler, C. J., 845
Brand, P., 966
Brant, R., 851
Breen, E. C., 120, 1697
Brilli, R. J., 1968
Bristow, G. K., 1630, 1635
Brixius, K., 652
Brooks, E. M., 477
Brouns, F., 746
Brown, R. H., 366
Bruce, E. N., 466
Buckwalter, J. B., 1575, 2037
Bupp, J. L., 1339
Burr, J. R., 824
Butler, J., 1933
Butler, J. P., 800

C

Cabral, A., 1164
Caceres, E., 376, 376
Cain, S. M., 1681
Cairns, A. M., 776
Cajochen, C., 134
Cala, S. J., 1242, 1256
Calzolari, C., 1076
Carey, M. F., 52
Carley, D. W., 1602, 1954
Carlton, D. P., 1307
Carraway, M. S., 550, 559
Carroll, M. C., 1090
Carson, J. A., 1270
Casaburi, R., 631
Castiglioni, P., 2123
Castro, M., 1998
Cave, C. B., 1370
Cerretelli, P., 1282
Chammas, J. H., 495
Chan, S., 414, 414
Chang, C. C., 1096
Chang, D.-M., 583
Chang, L.-Y., 559
Chang, R. T., 204
Chang, S. K., 1017
Charkoudian, N., 2012
Chefer, S. I., 1448
Chemla, D., 1083
Chen, H.-I., 2080
Chen, H.-X., 661
Chen, K. Y., 2112
Chen, L., 485
Chen, Q.-H., 661
Chen, Z., 196
Cheron, G., 1531
Chiang, C.-H., 583
Cho, S. C., 1307
Chomsky, D. B., 1933
Chow, C.-M., 1923
Chuang, J.-I., 354
Chuong, C. J. C., 1397
Clark, J. S., 884
Clark, K. L., 270
Clark, P. A., 927
Clemens, R. E., 82
Clifford, P. S., 1575, 2037
Cohn, D., 291
Colbert, L. H., 1461
Colice, G. L., 25
Colin, P., 1083
Collier, G., 5
Combs, C. A., 875
Conley, M. S., 2105
Considine, R. V., 3
Constable, P. D., 297
Corfield, D. R., 1438
Costa, M., 1282
Cottet-Emard, J. M., 376, 376
Coudert, J., 1300
Cox, V. M., 398
Coxam, V., 129
Crapo, J. D., 550, 559
Cream, C. L., 792
Criddle, M. J., 884
Criswell, D. S., 1270
Crouse, S. F., 2019
Culioli, J., 129
Cummings, J. J., 1538
Cureton, K. J., 262, 623, 2073
Curley, F., 975
Curran, A. K., 768
Curran, L. S., 2098
Curran-Everett, D., 2146
Curtis, S. E., 1681
Cutillo, A. G., 884

D

Danner, R. L., 1467
Darin, C., 1002
Darlington, D. N., 1648
Darquenne, C., 966, 2029
Davenport, P. W., 89, 918
Davicco, M.-J., 129
Davis, G. M., 511
Davis, J. M., 1461
Davy, K. P., 1947
Dawson, C. A., 495
De Crée, C., 1551
Deem, S., 240
Degner, D., 18
De Groote, A., 1531
Dekhuijzen, P. N. R., 1062
Delaney, P. A., 179
Delosso, T. N., 994
Delp, M. D., 1291
De Meersman, R. E., 229
Dempsey, J. A., 768, 1923
Deneke, S. M., 354
Derr, J. A., 477
De Sanctis, G. T., 681
DeSouza, C. A., 1947
Désy, F., 148
Deuster, P. A., 1822
De Vries, T., 746
De Wildt, S. N., 414, 414
De Witt, B. J., 543
Dhadwal, A., 1711
Diament, J., 608
Dietz, N. M., 1785
Di Rienzo, M., 2123
Doerschuk, C. M., 681, 1711
Dohm, G. L., 718
Domenick, M. A., 1660
Dorrington, K. L., 1110
Drazen, J. M., 681, 1814
Dreshaj, I. A., 317
Du, H., 25
Duan, C., 1291
Ducharme, M. B., 1635
Dudley, G. A., 1998, 2105
Dunai, J., 1986
Duneclift, S., 761
Durand, D. M., 317
Duranti, R., 1242, 1256

E

Eastwood, P. R., 768, 1923
Edgerton, V. R., 280, 1522, 1857, 2086
Effros, R. M., 1002
Egan, T. M., 247
Ehsani, A. A., 1900
Eichacker, P. Q., 1467
Eidelman, D. H., 1476
Eldridge, F. L., 196
El-Dwairi, Q., 348
Eliason, H. L., 830, 837
Ellis, A., 1282
Engel, B. T., 1448
English, M. B., 503
Erickson, H. H., 1235
Ervin, M. Gore, 213
Estenne, M., 1531
Evans, E. M., 262, 623, 2073
Evans, J., 1522
Eveloff, S., 291

F

Fahim, M. A., 59
Farkas, G. A., 1405
Farr, F. L., 884
Faulkner, J. A., 67, 817
Favier, R., 376, 376
Fedde, M. R., 1235
Fee, L. L., 503
Feldman, J. L., 1607
Fellmann, N., 1300
Feroah, T. R., 851
Ferretti, G., 1282
Ferrigno, G., 1256
Ferrigno, M., 1282
Fewell, J. E., 830, 837, 1612
Fielding, R. A., 860
Fink, G. R., 1438
Finn, P. W., 681
Finney, C., 1976
Fisher, J. S., 897
Fitz, Y., 1467
Fitzgerald, M. D., 160
Fleg, J. L., 1581
Fleming, N. W., 668
Fletcher, E. C., 95
Forjaz, C. L. M., 608
Foust, R., III, 1033
Fowler, M. D., 867, 875
Fox, K., 280
Fox, M. L., 845

Fozard, J. L., 1581
Franklin, K. A., 1184
Frazier, D. T., 391
Fredberg, J. J., 1595
Freed, A. N., 1884
Freeman, B. D., 1467
Frenette, P. S., 1090
Frim, J., 1635
Fu, Z., 120
Fuglevand, A. J., 1223
Fujimura, R., 1159
Fukuchi, Y., 46

G

Gagnon, J., 5
Gagnon, M., 383
Gallagher, C. G., 82
Gallagher, D., 229
Gallego, J., 1174
Galliven, E. A., 1822
Gallucci, R. M., 845
Gampper, T., 688
Gandevia, S. C., 753
Gao, X.-P., 74
Garcia, J. A., 712
Gardette-Chauffour, M. C., 575
Gardiner, P. F., 459
Gaumet, N., 129
Gauquelin, G., 376
Gautier, H., 253
Gay, S. B., 688
Ge, R.-L., 661
Gebert, W., 1076
Gelfand, E., 681
Gelinas, D., 1998
Geor, R. J., 1133
George, D. T., 994
George, K. P., 2158, 2167
Geurten, P., 1551
Ghaffar, A., 1461
Gharib, C., 376
Gheorghiu, I., 179
Giesbrecht, G. G., 1630, 1635
Gillis, H., 1192
Girten, B. E., 172
Gisolfi, C. V., 204
Goheen, M. S. L., 1630, 1635
Gold, P. W., 1822
Goldspink, D. F., 398
Gonzalez, R. R., 1017
Goodyer, C., 522
Gordon, S. E., 270
Gordon, T., 707
Goris, M., 2055
Gosselin, L. E., 1405
Goulet, C., 2086
Gozal, D., 1641
Grandjean, P. W., 2019
Green, F. H. Y., 681
Green, J. S., 2019
Greer, F. A., 644
Greer, J. J., 338
Griffin, M. P., 615
Grindeland, R. E., 1522, 1857, 2086
Grossman, E. J., 1522
Guardo, R., 1762
Guarin, M., 495
Guerrero, J. M., 354
Gunst, S. J., 731, 739, 1202
Guz, A., 1438
Gwinn, T. H., 511

H

Habler, O., 1832
Haddad, F., 1389
Haddad, I. Y., 1545
Haga, S., 1116
Hajduk, E. A., 851
Halter, J. B., 67, 1623
Hamm, C. R., 1370
Hammond, C. S., 89
Han, Y.-S., 1326
Hanel, B., 11
Hanger, C. C., 495
Hänninen, O., 189
Hansen, P. A., 897
Hantos, Z., 1595
Hara, N., 1432
Harasawa, Y., 1799
Hardeman, M. R., 746
Hardy, P. A., 904
Harf, A., 591
Hørmer, A. R., 511
Harms, C. A., 768
Harn, H.-J., 583
Harris, T., 229
Harrison, J., 1438
Hartman, M. L., 1756
Haskell, A., 407, 407
Hassett, C. A., 67
Haxhiu, M. A., 317
Hayward, J. S., 1630
Hazeki, O., 1842
Hechtman, H. B., 1090
Henderson, K. S., 1923
Hespel, P., 2055
Hess, D., 1733
Heyder, J., 966
Heymsfield, S. B., 229
Hickey, M. S., 718
Hickner, R. C., 897
Higuchi, M., 429, 2043
Hill, N. S., 25, 1209
Hinchcliff, K. W., 824
Hinder, F., 1941
Hines, R. O., 1090
Hinkle, R. T., 67
Hirano, Y., 1741, 1749
Hirschl, R. B., 1666
Hodges, P. W., 753
Hodgson, J. A., 2086
Hoffmann, S. C., 247
Hoischen, S., 652
Holloszy, J. O., 897
Hong, S. J., 1096
Hope, K., 2131
Horcajada, M.-N., 129
Hornstra, G., 746
Hoshi, Y., 1842
Houmard, J. A., 718
Hrousis, C. A., 1814
Hsia, C. C. W., 1397
Hsu, K., 583
Huang, Y.-C. T., 550, 559
Hughson, R. L., 1318
Hunter, S. K., 511
Hurley, B. F., 1581
Hussain, S. N. A., 348
Hutber, C. A., 1917
Hutchison, A., 89

I

Iglesias, J., 530, 530
Ikegami, M., 213, 1054
Imanaka, H., 1733
Incledon, T., 270
Ingenito, E. P., 1420
Inoue, H., 1432
Isakov, E., 333
Ishige, Y., 1749
Ishihara, A., 280
Ishii, N., 1741, 1749
Isono, S., 851
Ivey, C. L., 1962
Iwamoto, H., 1741
Izawa, T., 1116

J

Jackson, A. C., 1690
Jackson, D. A., 1461
Jackson, M. J., 817
Jacobs, E. R., 1002
Jacoby, C. R., 1706
James, R. S., 398
Jen, C. J., 2080
Jeneson, J. A. L., 2169
Jensen, T. U. S., 695
Jerome, E. H., 668
Jiao, A., 681
Jobe, A. H., 213, 1054
Joetham, A. A., 681
Johansen, L. B., 695
Johansson, G., 1184
Johnson, J. L., 1339
Johnson, J. M., 2012
Johnson, R. L., Jr., 1123, 1397
Johnston, C. E., 1630, 1635
Jones, D. A., 2169
Jones, D. R., 247
Jones, J. G., 32
Jones, M. D., Jr., 2146
Jones, P. P., 1947
Jones, R. H., 2146
Jones, T. B., 845
Joyner, M. J., 1785

K

Kacmarek, R. M., 1733
Kahn, R., 179
Kakihana, Y., 1842
Kamm, R. D., 1711, 1814
Kanaley, J. A., 1756
Kang, M., 830
Kantrow, S. P., 550, 559
Kapoor, S., 1933
Karman, Y. K., 359
Katragadda, S., 2048
Katsuta, S., 2043
Kaufman, M. P., 1043
Kawanaka, K., 429, 2043
Kay, A., 1986, 2005
Kayser, B., 936
Keens, T. G., 1641
Keizer, H. A., 1551
Kelley, D. E., 166
Kemming, G., 1832
Kemp, J. G., 644
Kenney, W. L., 477
Kenny, G. P., 1630, 1635
Kent-Braun, J. A., 1998
Kenyon, C. M., 1242, 1256
Kerrebijn, K. F., 1721
Kiely, D., 383
Kimball, W. R., 1733
Kingston, J. K., 1133
Kizaki, T., 1116
Klaesner, J. W., 1976
Kleen, M., 1832
Kleiman, J., 2005, 1986
Klinger, J. R., 25, 1209
Klokker, M., 1492
Knafelc, M., 918
Kobayashi, T., 661, 1849
Kobzik, L., 1090
Kocis, K. C., 1654
Koga, S., 1333
Kohut, M. L., 1461
Koller, A., 1076
Kondo, N., 1333
Kou, Y. R., 723
Koyama, S., 1508
Kraemer, W. J., 270
Krafte-Jacobs, B., 1968
Krämer, H.-J., 18
Kräuchi, K., 134
Krenz, G., 1002
Kriellaars, D., 40
Krishnan, B. S., 82
Kuna, S. T., 1588
Kunke, K., 912

L

Laaksonen, D. E., 189
Lackermeier, P., 1832
Lacy, D. B., 1339
Laferrière, A., 522
Lai, J., 466
Lambert, G. P., 204
Lambert, R. K., 140
Lang, C. C., 1933
Langsetmo, I., 1235
Larkin, L. M., 67, 1623
Larsson, H., 810
Latour, M., 148
Latzka, W. A., 860
Laughlin, M. H., 434
Lavoie, J.-M., 148
Lawrence, R., 354
Lecarpentier, Y., 1083
Lee, E. G., 845
Lee, L.-Y., 958
Lee, M., 280
Lee, Y.-J., 25
Leff, A. R., 1276
Leiendecker, E. R., 1623
Leiter, J. C., 25
Lejeune, D., 591
Lemasters, J. J., 247
Lemen, R., 912
Leon, A. S., 5
Leterrier, C., 129
Levin, M., 333
Levine, B. D., 102, 2139
Lewis, R. D., 623
Li, A., 420, 792
Li, C., 1768
Li, R., 95
Liberman, B., 608
Lijowska, A. S., 219
Lin, Y. J., 884
Lin, Y. S., 723
Linderman, J. K., 1857
Lindle, R. S., 1581
Linehan, J. H., 495
Linnarsson, D., 810
Lipsitz, L. A., 383
Lloyd, S., 323
Lofaso, F., 591

Lont, M., 1307
Losser, M.-R., 1566
Lowe, R. C., 2019
Ludwig, M., 1418
Lundgren, C. E. G., 1282
Lutchen, K. R., 1192
Lynch, N. A., 1581

M

Ma, M., 1090
MacDonald, J. R., 1877
MacDonald, M., 1318
Mack, G. W., 407, 407
Mackenzie, C. F., 179
Macklem, P. T., 936, 1242, 1256
MacLean, D. A., 1045
Madden, J. A., 1617
Madsen, P., 1492
Madwed, J. B., 1690
Magnussen, H., 1276
Mair, J., 1076
Malloy, C. R., 32
Mandava, S., 179
Marotte, H., 591
Marsh, D. R., 1270
Martin, J., 1877
Matalon, S., 1545
Mathew, O. P., 371
Mathieu-Costello, O., 120
Matott, R. P., 860
Matsukawa, K., 1454
Matsumoto, K., 1432
Mattox, M. L., 434
Mattson, J. P., 323, 1291
Maughan, R. J., 1152
Mayer, E. P., 1461
McArdle, A., 817
McBride, J. M., 270
McCall, G. E., 2086
McCool, F. D., 291
McCutcheon, L. J., 1133
McEvoy, R. D., 599
McFadden, E. R., Jr., 331
McGuire, M., 52
McIntyre, D., 2169
McKenna, M. J., 511
McLellan, T. M., 1017
McMurtry, I. F., 543
Meadows, G. G., 845
Medina, A., 383
Megirian, D., 1405
Melchiorri, D., 354
Mellen, N. M., 1607
Mensink, R. P., 746
Mero, A., 1144
Mertins Chiodini, B. A., 219
Messmer, K., 1832
Metreveli, N., 95
Metter, E. J., 1581
Meyer, R. A., 2169
Michel, R. P., 1476
Michelson, D., 1822
Mier, C. M., 897, 1660, 1900
Mifflin, S. W., 1890
Miikkulainen, H., 1144
Miller, M. R., 1517
Miller, R. G., 1998
Miller, T. F., Jr., 1033
Mitchell, J. H., 712
Mitchell, R. W., 1276
Mitzner, W., 366
Miyahara, T., 1508
Mizrahi, J., 333
Modlesky, C. M., 623
Montain, S. J., 860
Moore, F. D., 1090
Moore, L., 1968
Moore, L. G., 1706, 2098
Moore, P. G., 668
Moqbel, R., 679
Morgan, A. L., 477
Morgan, B. J., 2048
Morgan, L. J., 718
Morin, R., 383
Morio, B., 1300
Morpurgo, M., 2123
Mortola, J. P., 537
Morton, R. F., 958
Moseley, P. L., 1413
Moss, I. R., 522
Motté, G., 1083
Mueller, D., 1405
Mueller, P. J., 1575, 2037
Muggenberg, B., 912
Mukku, V., 1857
Müller-Ehmsen, J., 652
Murariu, C., 253
Murphy, K., 1438
Murphy, R. J. L., 459
Musch, T. I., 323, 1291
Myers, S. I., 530

N

Nadeau, A., 5
Nadel, E. R., 407
Nagasawa, J., 1116
Nagase, T., 46
Nagashima, K., 407
Namdaran, K., 1339
Naquet, R., 575
Natanson, C., 1467
Nattie, E. E., 420, 792
Negrão, C. E., 608
Neill, A., 599
Nevill, A. M., 2167, 2169
Nevill, M. E., 2169
Ng, A. V., 1998
Nichols, D. G., 1654
Nicolau, W., 608
Nicolaysen, A., 1499
Nieves-Cruz, B., 1545
Nimmons, M., 2105
Nishimura, M., 1733
Nitta, S., 1849
Nóbrega, A. C. L., 712
Noonan, T., 681
Noppen, M., 1907
Norins, N. A., 1617
Norsk, P., 695, 1862
Nsegbe, E., 1174
Nyhan, D. P., 451

O

O'Brien, B. C., 2019
O'Connor, J. J., 52
O'Donnell, C. P., 1671
O'Gorman, J. T., 477
Ohmura, S., 1849
Ohno, H., 1116
Oka, T., 46
Okubo, K., 1733
O'Leary, D. D., 2131
Olopade, C. O., 74
Omori, C., 1884
O'Neill, D. S., 718
Ookawara, T., 1116
Oostenbrug, G. S., 746
Ortiz, G. G., 354
Otto, R. A., 89
Ou, L.-C., 25
Ouchi, Y., 46

P

Pablos, M. I., 354
Paiva, M., 810, 966, 1531, 1907, 2029
Pakhlevaniants, S., 74
Pakkanen, R., 1144
Pandolf, K. B., 860, 1017
Paquette, J., 522
Paré, P. D., 140
Parker, J. C., 1370, 1697, 1962
Parker, J. L., 434
Parker, R. E., 1976
Passerini, D., 1968
Pastoureau, P., 129
Pawelczyk, J. A., 2139
Payen, D., 1566
Pechet, T. T. V., 1090
Pedersen, B. K., 1492
Pedersen, M., 1492
Pedersen, M. E. F., 1110
Pedersen, O. F., 1517, 1721
Pedersen, P. K., 1318
Pedersen, T. F., 1517
Pedotti, A., 1242, 1256
Peny, M.-O., 1164
Perkins, W. J., 1326
Perruchet, P., 1174
Pérusse, L., 5
Peták, F., 1595
Piantadosi, C. A., 550, 559
Pickar, J. G., 113, 323
Pickering, G. P., 1300
Pickett, C. K., 1706
Pierson, R. N., 229
Pierzga, J. M., 477
Pietras, L., 1209
Pietsch, M., 652
Pison, C., 1566
Polk, D. H., 213
Poole, D. C., 1235
Pou, N. A., 1976
Prakash, Y. S., 1062
Preiser, J.-C., 1164
Presson, R. G., Jr., 543
Prior, B. M., 262, 623, 2073
Prisk, G. K., 810, 2029
Provenzano, M. A., 1867
Puhl, S. M., 270
Puleo, D., 2048
Pump, B., 695
Puschendorf, B., 1076
Putukian, M., 270

Q

Qin, A. X., 1389
Qin, S., 681
Quezado, M., 1467
Quezado, Z., 1467

R

Rabe, K. F., 1276
Rabøl, A., 11
Racette, S. B., 897
Radák, Z., 1116
Rådegran, G., 1045, 1383
Radell, P. J., 1654
Radulovacki, M., 1602, 1954
Rama, D., 1076
Ramires, P. R., 608
Rao, D. C., 5
Rasmussen, B. B., 1104, 1917
Rebello, C. M., 213
Reed, N. W., 219
Reinhart, G. A., 824
Reiter, R. J., 354
Remmers, J. E., 851
Renzetti, A. D., Jr., 884
Rhee, K., 912
Richardson, C. A., 753
Richter, E. A., 1482
Rickaby, D. A., 495
Riski, J., 1144
Ritz, P., 1300
Riva, A., 530
Road, J. D., 776
Robbins, P. A., 1110
Robotham, J. L., 1671, 1799
Rodarte, J. R., 1068, 1486
Rodman, J., 1405
Roemmich, J. N., 927
Rogers, R. A., 1002
Rogiers, P., 1164
Rogol, A. D., 927, 1756
Rohack, J. J., 2019
Rohde, T., 1482
Romanovsky, A. A., 359
Roselle, D., 1968
Roselli, R. J., 1976
Rosenthal, F. S., 1768
Rosseau, S., 18
Rostain, J. C., 575
Rothenbach, P., 530
Rousseau, G., 459
Roy, B. D., 1877
Roy, R. R., 280, 1522, 1857
Roy, S., 189
Roy, T. A., 1581
Rubinstein, I., 74
Ruell, P. A., 511
Rumpler, W. V., 1775
Russell, R. G., 179
Ryan, K. L., 2091
Ryschon, T. W., 867, 875

S

Sadamoto, T., 1454
Sahin, M., 317
Saiki, C., 537
Sajkov, D., 599
Sakkal, D., 348
Sale, D. G., 2131
Saltin, B., 1045
Salzman, A. L., 1968
Sammon, M., 975
Sandström, E., 1184
Santamore, W. P., 994
Saris, W. H. M., 2064
Saugen, E., 1557
Saunders, M., 623
Saunders, N. A., 599
Sawka, M. N., 860
Scano, G., 1242, 1256
Scharf, S. M., 485
Schaub, C. D., 1671
Schneeberger, E. E., 1002
Schneider, H., 1671
Schoffelen, P. F. M., 2064
Schofield, B., 1884
Schuermans, D., 1907
Schultz, H. D., 1216
Schütte, H., 18
Schwartz, A. R., 1671

Schwinger, R. H. G., 652
Seale, J. L., 1775
Seals, D. R., 160, 1947
Sebastianelli, W. J., 270
Secher, N. H., 11, 1492
Sedlock, D. A., 153
Seeger, W., 18
Segal, S. S., 1223
Seidlitz, B., 1551
Sejersted, I., 1557
Sempore, B., 376
Sen, C. K., 189
Sepúlveda, D., 229
Serikov, V. B., 668
Sewerynek, E., 354
Shaffer, T. H., 1033
Shah, A. R., 1641
Shannon, R., 391
Shen, X., 731, 739, 1202
Shi, W., 1476
Shibamoto, T., 1508
Shimoda, L. A., 1617
Shiojiri, T., 1333
Shirreffs, S. M., 1152
Short, K. R., 153
Sieck, G. C., 1062, 1326
Silva, M. E. R., 608
Simon, B. A., 451
Simoneau, J.-A., 166
Simonson, S. G., 550, 559
Singh, A., 1822
Sinoway, L., 1045
Skatrud, J. B., 2048
Skinner, J. S., 5
Skrinar, G. S., 860
Slama, M., 1083
Sliwinski, P., 936, 1256
Sloniger, M. A., 262, 623, 2073
Smail, N., 1164
Smith, C. A., 768, 1923
Smith, D. J., 1968
Smith, F. G., 414
Smith, P., 2005
Smith, P. L., 1671
Smith, R. M., 503
Sone, Y., 1499
Sorichter, S., 1076
Spielvogel, H., 376
Spina, R. J., 1900
Stachenfeld, N. S., 407
Staub, N. C., 668, 1499
Stawitcke, F. A., 668
Sternberger, W. I., 1654
Steudel, W., 18
Stevenson, E. T., 1947
Stockwell, M. J., 82
Stone, M. H., 2105
Stray-Gundersen, J., 102
Stringer, W. W., 631
Strunz, C. M. C., 608
Su, W. Y., 707
Sugi, H., 1741
Suki, B., 1420
Summers, R. W., 204
Sun, M., 2112
Sun, S. F., 2098
Supiano, M. A., 67, 1623
Suratt, P. M., 688
Sutton, J. R., 511
Suzuki, H., 74
Suzuki, M., 1159
Suzuki, Y., 1849
Swenson, E. R., 240
Swenson, R. A., 824
Szabó, C., 1968

T

Tabata, I., 429, 2043
Tadjoré, M., 148
Takahashi, N., 1432
Takala, T., 1144
Takarada, Y., 1741, 1749
Takata, M., 1799
Takata, S., 1432
Talan, M. I., 1448
Talmadge, R. J., 280, 1522
Tamura, M., 1842
Tanaka, H., 160, 1947
Tang, P. A., 1612
Tanner, C. J., 718
Taqi, A. S., 1666
Tarnopolsky, M. A., 1877
Tashiro, K., 1849
Taskar, V., 1884
Tatsumi, K., 1706
Taylor, A., 95
Taylor, D. E., 550
Taylor, W. F., 2091
Tehrani, M. J., 1648
Ten Hoor, F., 2064
Tepper, R. S., 731, 739, 1202
Teunissen, I., 11
Thach, B. T., 219
Theodorou, A., 912
Thomas, G. D., 32
Thompson, M. W., 511
Till, G. O., 1666
Tobiasz, M., 936
Tobin, J., 1581
Todoran, T. M., 543
Toews, M. L., 1216
Tokuyama, K., 1159
Tolfrey, K., 2167
Tolnai, J., 1595
Tommasini, R., 2123
Traber, D. L., 1941
Traber, L. D., 1941
Tran, H.-C., 120
Tran, Z. V., 160
Traystman, R. J., 1654
Trbovic, S. M., 1602, 1954
Trinder, J., 1986, 2005
Triplett-McBride, N. T., 270
Tsuda, A., 800
Turley, K. R., 948
Turnage, R. H., 530
Turner, M. J., 897, 1900
Tyberg, J. V., 1797

U

Ustinova, E. E., 1216

V

Vahanian, A., 1083
Van Balkom, R. H. H., 1062
Van Beveren, J. A., 2005
Vandenberghe, K., 2055
Vandeputte, D., 1877
Van der Meulen, J. H., 817
Vangerven, L., 2055
Van Hecke, P., 2055
Van Kranenburg, G., 1551
Van Leemputte, M., 2055
Van Muylem, A., 1907
Vanoye, C. R., 1588
Vardon, G., 1174
Veldhuis, J. D., 1756
Verbanck, S., 810, 1907
Verbitsky, O., 333
Vermorel, M., 1300
Victor, R. G., 32
Videbaek, R., 1862
Vincent, J.-L., 1164
Vincken, W., 1907
Visser, M., 229
Vizek, M., 700
Volek, J. S., 270
Vøllestad, N. K., 1557
Vromen, A., 1968

W

Wada, K., 1054
Wagner, D. D., 1090
Wagner, E. M., 366, 784
Wagner, W. W., Jr., 543
Wain, J. C., 1733
Wait, J. L., 1123
Walker, T. A., 1681
Walmrath, D., 18
Wang, H.-G., 1508
Wang, J.-S., 2080
Wang, X.-Z., 661
Wantier, M., 1531
Warberg, J., 11
Warburton, R. R., 1209
Warkander, D., 1282
Warren, C., 148
Wasserman, D. H., 1339
Wasserman, K., 631
Waters, K. A., 522
Webber, S., 40
Weger, N., 912
Weigle, G. E., 1235
Weil, J. V., 1706
Weiner, M. W., 1998
Weisbrode, S. E., 172
Weiser, M. R., 1090
Wells, U., 761
Welte, M., 1832
Weltman, A., 927, 1756
Weltman, J. Y., 1756
Welty-Wolf, K. E., 550, 559
West, J. B., 120, 810, 1697, 2029
Westerterp, K. R., 2064
Whitelaw, W. A., 851
Widdicombe, J., 761
Wiggs, B. R., 1711, 1814
Williams, J. H., 444
Williams, J. P., 1090
Williams, J. S., 312
Williams, S. G., 1370
Williamson, J. W., 712
Wilmore, J. H., 5, 948, 1660
Wilson, J. R., 1933
Wilson, T. A., 1068, 1486
Winder, W. W., 1104, 1917
Winter, W. C., 688
Winters, S. L., 1348, 1360
Wirz-Justice, A., 134
Wise, R. J. S., 1438
Wiseman, R. W., 2169
Withey, W. R., 1017
Wladkowski, S. L., 477
Wolfe, L. A., 644
Wolfson, M. R., 1033
Wolyniec, W. W., 681
Wright, C., 1389
Wu, M. F., 731, 739
Wu, T.-Y., 661
Wu, Z.-X., 958
Wysong, R. E., 867, 875

X

Xi, L., 1923
Xia, T., 204
Xie, A., 2048
Xu, F., 391

Y

Yamamoto, K., 1849
Yan, H.-C., 583
Yan, S., 936, 1242, 1256
Yeates, D. B., 1348, 1360
Yoshimura, K., 661
Young, I. S., 398
Younger, J. G., 1666
Yuan, H., 1420
Yue, G., 904

Z

Zanaboni, P. B., 451
Zeni, F., 1467
Zhan, W.-Z., 1062
Zhang, H., 1164
Zhang, R., 2139
Zhang, Y., 2146
Zhang, Y.-Y., 631
Zhang, Z., 391
Zhuang, J., 2098
Zimmet, P. Z., 5
Zintel, T. A., 82
Zuckerman, J. H., 2139